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ABSTRACT

This book is designed to provide the information needed to start a new agricultural library. The guide covers a wide range of topics including information sources, acquisitions procedures, and public relations. It provides addresses of publishers and information sources; a list of common abbreviations; a ground plan for a library; and information on library equipment. Topics covered in the six chapters are as follows: (1) "Collection Building" explains scientific information, selection criteria, and information on journals, series, books, pamphlets, and reference books; (2) "Ways of Overcoming a Shortage of Funds" lists methods of overcoming funding problems; (3) "Library Personnel" examines training, job descriptions, and professional reading for library staff; (4) "Library Management" covers ordering, catalogues, classification, loans, automation, services, statistics, and budgets; (5) "Agricultural Information Sources" lists online literature retrieval sources; hosts and vendors; compact discs; and information on institutions relevant to agriculture libraries; and (6) "Library Instruction and Public Relations" covers library instruction, planning, and public relations. Included in the appendices are lists of agricultural journals, reference books, and library science journals. (JLB)

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ILRI Publication 50

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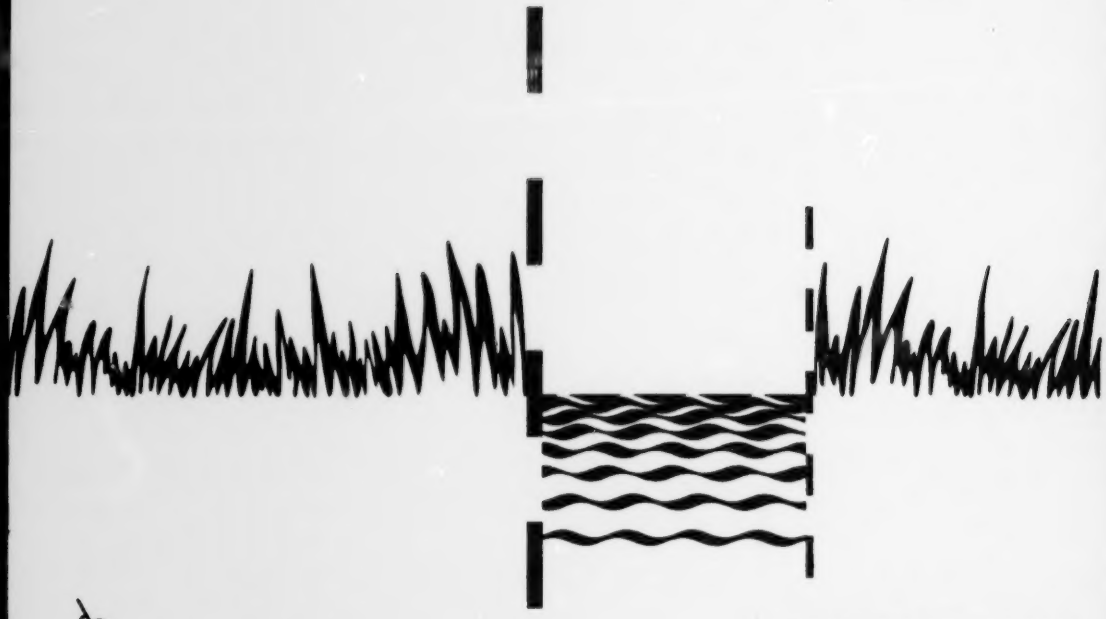
An Agricultural Library: Its Start and Management

G. Naber



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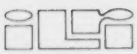
An Agricultural Library: Its Start and Management

G. Naber

Publication 50



International Institute for Land Reclamation and Improvement,
P.O.Box 45, 6700 AA Wageningen, The Netherlands, 1991

In 1983, an agreement was reached between the institutions of the Dutch Government Service for Agricultural Research/*DLO* and the University of Agriculture in Wageningen. This agreement stated that the institutions and the University would pursue a policy of collaboration in their libraries and in their documentation and information services.

Ten Wageningen libraries, each covering a specific discipline, will eventually be involved in this collaboration. The Library of the Staring Building, which is administered by ILRI, has been designated to cover the discipline 'Land, Soil, and Water'.

The collaborating libraries at present support 'partner' libraries in Benin, Indonesia, and Mozambique. Libraries in five other countries will receive support in the near future. It is intended that the 'partner' libraries pass on the benefits of the 'Wageningen' collaboration to agricultural institutions in their own countries.

DLO's Centre for Agricultural Publishing and Documentation/Pudoc is the active pivot of this collaboration.

To support the start and subsequent management of agricultural libraries in developing countries, Pudoc-*DLO* will distribute copies of this book to selected universities and research institutions in such countries.

In 1980, the International Association of Agricultural Librarians and Documentalists/IAALD and Pudoc published *A Primer for Agricultural Libraries*, which was written by Olga Lendvoy. A useful tool in those days, it is now outdated. Consequently, when G. Naber returned from three years in Mozambique with an outline of *An Agricultural Library : Its Start and Management*, IAALD and Pudoc encouraged him to publish it, seeing it as a fitting successor to *A Primer for Agricultural Libraries*.

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Acknowledgements

In 1984, Mr José Rodriguez Pereira, the Dean of the Faculty of Agronomy and Forest Engineering of the Eduardo Mondlane University, Maputo, Mozambique, stated that a well-chosen library was essential in strengthening education and research. He said that students should be encouraged to use the library during their training to help them prepare for their professional careers. Subsequently, when the proposal for the Plant-Soil-Water Project, First Phase, was formulated between the Eduardo Mondlane University and the Dutch Directorate-General for International Cooperation, the Project's ten-man team of expatriates included myself as librarian. This book is a secondary benefit of that three-year period of cooperation.

Many persons have supported me in preparing the book. In the first place is my wife Petra, with whom I discussed all items in detail. Her keen mind and valuable comments upgraded the quality of the manuscript.

During my ten years as a librarian, I have written many publications, several in English. Thanks to Margaret Roche, ILRI's senior scientific editor, all my double-Dutch was transformed (not just translated) into readable English, acceptable for scientific journals.

I would also like to express my appreciation to Joop van Dijk, ILRI's draftsman, for the sensitivity with which he made the drawings for the book.

G. Naber

Foreword

Inadequate training for information workers has long been among the most prominent constraints to an efficient and effective delivery of information for agricultural research and extension. Even in the developed world, where university programs for librarians and information specialists are numerous, specialized training for agricultural information workers is largely unavailable. Librarians, documentalists, and information specialists are expected to learn on the job, or to apply their general knowledge to a field – agriculture – that has unique properties.

In the developing countries, the problem is even more acute. The need for training in the techniques of agricultural information has been identified continuously over the past thirty years by every major forum of agricultural librarians, documentalists, and information specialists in the tropics, as the most pressing problem to be solved, aside from funding. University programs for library and information workers are scarce, and such programs as exist may not meet the needs of a professional in the modern library or information centre.

Good programs are needed to provide basic training for library workers. Library staff members are usually eager to learn new techniques and better ways of handling information, but without training opportunities, the ability of staff members to grow in their jobs is limited. Staff training opportunities function to the benefit of the entire institution. Not only is the career path of the individual library staff member improved through training, but as the productivity of the information unit is enhanced, scientific researchers are also better able to meet their own goals. Because training has such a high potential for return on the investment, it behooves research institutions to do what is possible to mount local training courses with the goal of optimizing the use of the information resources that are available – both human and material.

The first requisite for good training courses is that of good training manuals. Some years ago, IAALD (the International Association of Agricultural Information Specialists) published a *Primer for Agricultural Libraries*, and this manual was eventually translated into a number of different languages. Now ILRI has offered IAALD the opportunity to support the production of another training manual. The Association is both pleased and proud to do so.

The manual presented here, *An Agricultural Library: Its Start and Management*, offers agricultural information workers a wealth of information on basic information-centre activities. The guide covers a wide range of topics – from information sources and acquisitions procedures to library services and public relations. It provides addresses of publishers and information sources, a list of common abbreviations, a ground plan for a library, information on equipment, and other much needed data for the new library or information centre.

While the manual is designed to provide the information needed to start a new library, it also provides the information needed to train a new staff worker in an existing information centre. There is a good deal of material that is also of use to long-term staff members who want to improve their skills or to understand the functions of workers in another area of the library.

While no single reference source can cover every situation that will arise, or provide all the information needed on sources of agricultural literature, this manual does a very fine job of covering the key areas. It is readable, and the material is clearly organized by subject sections and appendixes. Users will be able to adapt it to local needs as they see fit.

For all these reasons, IAALD is pleased to have been offered a part in sponsoring the publication of this training guide. The members of the Training and Education Committee of IAALD, and all the members of the Executive Committee, wish the information professionals who will be using the manual the best of luck in their training activities.

Joseph H. Howard
Director,
National Agricultural Library
and
President,
International Association of
Agricultural Information Specialists
IAALD
Beltsville, MD 20705, U.S.A.

Susan C. Harris
Director,
Ruben Salazar Library
and
Training and Education
Committee, IAALD
Sonoma State University
Rohnert Park, CA 94928,
U.S.A.

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1 Collection Building

Today, the combination of sophisticated printing techniques and the worldwide acceleration of scientific research is producing vast amounts of information. Obviously, the results of scientific research must be made available to those who need them. Needless duplication of research can be prevented if scientists are aware of what other scientists are doing. But because of the great quantity of information being produced and the variety of ways in which it is published, a scientist faces a formidable task in keeping track of it all.

The main task of a librarian is to channel this great flow of information and make it accessible to the scientist. Before he can do so, however, he must understand the structure of scientific information and the regulatory mechanisms that control it.

1.1 Structure of Scientific Information

Information is often defined as 'knowledge in motion between people'. What we are dealing with here is 'documentary knowledge in motion between scientists'. The structure of this process is shown in Figure 1.

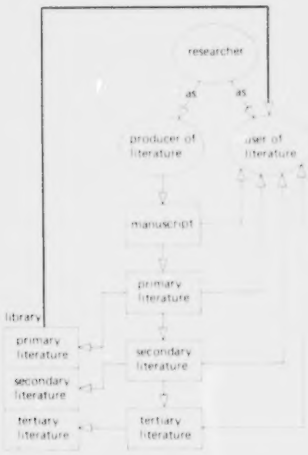


Figure 1 Structure of transfer of documentary knowledge between scientists

The manuscript produced by a scientist may become an article in a journal, a paper in the proceedings of a congress, or a book. All this is called primary literature. It is offered directly to the reader through his subscription to the journal or his purchase of the proceedings or the book. Or it may be offered to him indirectly through a library, where it can be retrieved by way of the catalogue. This applies to the entire book, to the congress proceedings in their totality, and to the journal as a whole. But it does not apply to individual chapters of the book, to individual papers in the proceedings, or to individual articles in the journal, which are 'lost' in the library catalogue.

The 'loss' of these items has led to the creation of secondary literature, which treats the chapters, the papers, and the articles as separate publications. The original 'packaging' is undone and the items are 'repackaged' according to subject.

Secondary literature is compiled by abstracting and indexing services. It constitutes a guide to the contents of primary literature. These guides are either kept in libraries or supplied directly to their potential users.

(Another type of secondary literature which does nor enter this discussion is that intended as a register of all publications and aiming at 'Universal Bibliographic Con-

trol'. Examples are national bibliographies and publishers' catalogues.)

Secondary literature can be retrieved through tertiary literature, which presents inventories of the indexing and abstracting journals that are the guides to primary literature. Such publications often have titles like *A Guide to Literature on ....* or *Information Sources in the Field of .....*

1.1.1 Regulatory Mechanisms

Obviously, not all scientific literature produced is equally valuable. Fortunately, however, a scientist need not read everything that is published to keep informed of developments in his field. A number of regulatory mechanisms control the flow. These are quality selection and qualitative concentration.

Quality Selection

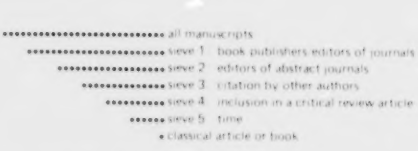

all manuscripts
sieve 1 book publishers editors of journals
sieve 2 editors of abstract journals
sieve 3 citation by other authors
sieve 4 inclusion in a critical review article
sieve 5 time
classical article or book

Figure 2 The five sieves of quality selection (Loosjes 1978)

At the start of the process of quality selection, which comprises five sieves (Figure 2), a manuscript either becomes a publication or it does not. Of the many that do, only a few finally remain as classical articles or books. After ten years, more than 98 per cent of scientific work is entirely forgotten.

Qualitative Concentration

Four precepts describe the process of qualitative concentration:

The 'star' system. A natural concentration of quality occurs among scientists, usually in the form of a 'school', headed by one or more of the leaders in a field. These 'stars' attract other 'stars' and the process of qualitative concentration continues. Slamecka and Zunde (1971) claim that n^2 scientists will produce n 'stars'; or, of every 500 scientists, 22 'stars' will appear;

A ranking order of journals. The articles of 'star' scientists tend to be published in prestigious journals. Other authors working in the same field will then try to get their work published in the same journal. With greater numbers of manuscripts submitted to journal editors, they can afford to become ever more critical, selecting only the best articles. In this way, a journal spirals upwards in quality. It will be cited more frequently than others, will be more readily included in library collections, and will be consulted more often than journals not kept by the library;

Bradford's law. Bradford (1948) investigated the way in which articles on a certain subject are scattered over various types of journals. He discovered he could divide the journals into three categories, each of which contains one-third of the total of articles, as follows:

- 1/3 in a small number of specialized professional journals;

- 1/3 in a much larger number of journals in related fields;
- 1/3 in all other journals.

The ratio of journals in each category is 1 : 5 : 25. So, if in one year 375 articles are published in 155 journals, 375 ÷ 3 = 125 articles will be published in each category. Category 1 will cover about 5 journals, Category 2 about 5 × 5 = 25 journals, and Category 3 about 5 × 5 × 5 = 125 journals (or one article in each journal);

The 80/20 % rule. This rule applies to many things. Dispensing chemists, for instance, have found that 80 per cent of the prescriptions they make up require the use of only 20 per cent of their range of stock. Similarly, librarians have found that 80 per cent of the requests they receive are for 20 per cent of the literature on their shelves. The rule also applies to scientific articles, 80 per cent of all articles on a subject being found in 20 per cent of the journals.

Using his knowledge of the structure of scientific information and its regulatory mechanisms, a librarian can define criteria that will help him decide which publications to include in the library's collection.

1.2 Selection Criteria in General

As funds, trained staff, and space are scarce in any library, these resources should not be wasted by including publications that are of little or no use. No matter whether publications are ordered, received under an exchange agreement, or acquired as a gift, strict selection criteria should be applied to them.

This section deals with selection criteria in general. These are useful for all kinds of publications. Specific criteria for specific publications (journals, books, series, pamphlets, and reference works) will be treated in separate sections in this chapter.

In defining selection criteria, a librarian should keep the following matters in mind:

- The lectures being given by the mother organization and/or the research it is conducting will mainly determine the subjects of the publications that the library will contain. Not everything published on agriculture is needed: only those documents on relevant subjects. A list of the codes of subjects of the Universal Decimal Classification/UDC will help in making the right choices. This list, as it pertains to agriculture, can be found in Appendix 7;
- A particularly strict selection has to made from among all kinds of publications offered to the library free of charge. A library is not an archive! One need not keep everything; offers may be thrown away;
- A library will not keep documents that concern the mother organization, or parts of it (e.g. mission reports, development plans, letters to the director);
- A library serves people working in the same field, who are therefore interested in the same books and journals. Sometimes, individuals within an organization are involved in subjects slightly outside the scope of the organization. They often gather publications from the 'grey literature' and ask the library to handle them. Keeping all these publications for the use of one person means a lot of work. And although staff members should normally be discouraged from keeping publications just for

their own use, in these cases the library should help them to organize a small specialized collection in their own office. Instructions on how to set up and manage these very small, often temporary, libraries are set out in Appendix 1;

If a library is being rehabilitated, the use of the existing collection will to a large extent determine which publications should be kept. An analysis of the loan administration will show how the collection is being used, revealing which persons borrow what. An analysis of lists of references or bibliographies in publications by staff members also gives an insight into the use of the library. Such analyses, however, do not reveal which publications a user might have wanted but could not obtain. Oral or written inquiries among users might shed some light on this matter. Often, however, it is not quite clear whether respondents indicate the publications they really missed or whether they also indicate the publications they feel they should have read, but would not actually have used. This kind of analysis can also reveal which languages should be included and which should not;

Once all this information has been gathered, a librarian must keep up with new developments. He should therefore be regarded as a member of the academic staff, and should attend any meetings they have;

According to the 'star' principle, publications from famous authors, institutions, and publishers should be included in the collection. A second edition of a publication often indicates a 'star' publication. Before acquiring it, however, the librarian should check whether it differs significantly from the first edition. A comparison of the number of pages is often a good indicator;

In agriculture, quite a lot of information loses its importance as it grows older. Publications more than, say, seven years old should therefore be subjected to a really strict scrutiny;

Publications on agriculture in the country where the library is located should all be included in the collection;

So, too, should any publications written by staff members of the mother organization, if only because people outside will expect the library to have them. The librarian can encourage staff members to deliver their publications to the library by explaining to them that, through the library links, their publications will be included in the databases of information and documentation services such as the Commonwealth Agricultural Bureaux International CABI and the United Nations' Food and Agriculture Organisation FAO;

People reading publications by staff members are often interested in the works listed in the references or bibliography. Authors should therefore be encouraged to hand in these publications to the library. If they have been borrowed from another library, consideration could be given to acquiring them;

A library should not only 'follow' the mother organization by including those subjects that cover the organization's main efforts; it should also 'guide' the mother by acquiring publications on new developments which are, or are becoming, the focal point of discussion, whether inside or outside agriculture;

Publications from international (research) organizations like the CGIAR institutions, the World Bank, the European Community, NTIS, GPO, and UNESCO need not all be kept, but their recent catalogues should be available in the library. If users need these often very interesting publications, they should be ordered. Information on how to order them should be gathered and kept up to date.

In later sections, the above criteria will be further refined for each specific type of publication. But first, the following aspects of collection building will be dealt with:

- How to deal with requests from users to acquire certain publications;
- How to act when publications are offered to the library.

1.2.1 Requests to Acquire a Publication

To build a good collection, a librarian needs all the support he can get from specialists in a subject. They should be encouraged to make suggestions for acquisitions and to assist in judging which publications to acquire. On the other hand, they may make suggestions that are beyond the scope of the library (i.e. that do not meet the criteria for collection building). Sometimes, it is difficult to convince such people that those publications should not be acquired. In case of doubt, the following action could be taken:

- If the person merely suggests a title, it is reasonable to ask him for more information;
- It is not always necessary to buy a publication. If it can be foreseen that it will be used only for a short time and only by a few people, it might be more economical to borrow it from another library;
- If many publications are requested together, one should remember that scientists, especially those working in agriculture, do not spend much of their time reading. One might accept the request, but take no further action until the person inquires again.

A librarian should acquire a good knowledge of the activities of staff members. This will enable him to judge whether the requested publication fits in with their work, or whether other staff members will be interested as well;

1.2.2 Publications Offered to a Library

Many publications arrive in a library either through an exchange agreement or as a gift. These require a specially strict selection.

If any such publications are rejected, they should be clearly marked as rejects. Afterwards, they might be handed over to a staff member who is interested. If the rejects return to the library after a while, it can be seen that they have been rejected before. This saves much unnecessary work.

Rejected publications are often donated to other libraries. This means a lot of work for the library offering them, but also for the library receiving them. It is never clear to me why people hate to throw publications away, even if they are written in an unfamiliar language or are of no scientific importance. But although lots of publications offered free of charge to libraries are on the same level as old newspapers, they cannot even be used 'to wrap up the fish'.

Nevertheless, any publications offered to a library should always be accepted. Some of them may be valuable. These are often easy to spot. But one should point out to the donor that it is impossible to promise to keep and catalogue all publications offered.

If people offering publications are of the opinion that these should be kept and catalogued, it is always possible to accept them, but then to take no further action until the person offering them inquires again.

Sometimes staff members retiring from the organization leave an interesting collection, often restricted to a certain subject. Cataloguing all these publications is a great deal of work. If they are really valuable, the collection as a whole could be included in the catalogues, under the heading of the name of the person offering them. If the collection concerns more than one subject, some extra cards should be placed in the classified catalogue to cover each of these subjects.

1.3 Abstract Journals – Databases

In pre-computer days, the publishers of abstract journals confined their activities to collecting the material and distributing the product. In the early seventies, they started using computers, especially to produce the indexes on a monthly and annual basis. By recording the entries for future editions of abstract journals on computer tapes, they were able to offer the information to users in other ways (e.g. for online retrieval).

Until 1970, the scientist found his information by leafing through books, journals, and catalogues. With the information available on tape, much of this 'paper work' has been made superfluous. A scientist now sits in front of a computer terminal and, via a worldwide communication network, links up with a host computer or vendor, which supplies him with the required information in a fraction of the time (Figure 3).

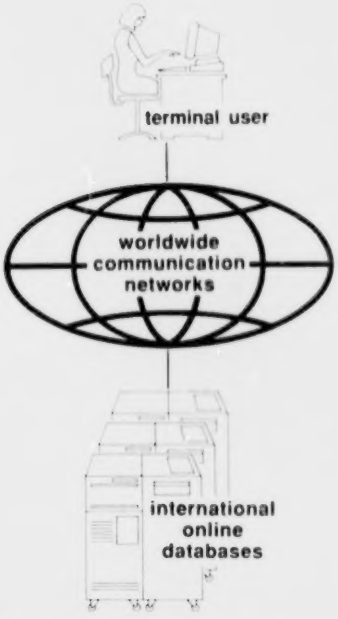


Figure 3 Via a worldwide communications network, the terminal-user links up with online systems

Online literature retrieval depends considerably on good communication lines. These lines are not always reliable, particularly in developing countries. The arrival of databases on compact disc has solved this problem. (See further in Section 5.3: Compact Discs). Nowadays, the following are available on compact disc:

- AGRICOLA, produced by the National Agricultural Library NAL in the U.S.A.;
- AGRIS, produced by FAO in Italy;
- CABI, produced by the Commonwealth Agricultural Bureaux International in the U.K.;
- TROPAG, produced by the Royal Institute of the Tropics in The Netherlands.

Condensed information on agricultural databases, taken from *Online Databases in the Medical and Life Sciences*, which is published by Cuadra Elsevier, is given in Appendix 14. Some of them are only available on computer tape; others have a hard-copy issue, either on paper or on compact disc.

It is not easy to decide which abstract journals to keep in a library. Those issued by the Commonwealth Agricultural Bureaux International CABI are excellent: expensive but good. *AGRITROP* (issued by the Centre de Cooperation Internationale en Recherche Agronomique pour le Developpement CIRAD) and *Abstracts on Tropical Agriculture* (issued by the Royal Institute of the Tropics), although containing fewer citations, deal specifically with agriculture in the tropics and subtropics. They are therefore worthwhile acquiring.

1.4 Journals

1.4.1 Selection Criteria for Journals

The following types of journals might be considered for inclusion in the library collection:

Journals whose articles are often cited in the abstract journals of CABI. In that way, if someone traces an interesting title in CABI, he can also find the article;

Journals dealing with agriculture in a practical way (e.g. *Farmer's Weekly*);

Journals dealing with applied agricultural research, rather than more fundamental research;

Journals dealing with a broad subject (e.g. agronomy, crop science, soil science, fertilizers, pest management) rather than journals dealing with more specific subjects (e.g. groundnuts). Of course, if an organization spends much of its efforts on specific subjects, journals on those subjects should be included;

Journals on agriculture from countries with the same climate;

Newsletters from international (research) institutions;

Journals with an editorial board of well-known scientists ('stars'), working in similar countries and/or climates;

Journals on more general subjects (e.g. *New Scientist*) or on computers (e.g. *Byte* or *PC Resource*).

1.4.2 Where to Find Journal Titles

Abstract journals list the titles of journals and the articles that appear in them. From them, it is possible to judge the value of a journal for the library.

The Union Catalog of Serials in International Agricultural Research Centres IARCs contains 5,300 journal and serial titles from fourteen IARCs, including some non-CGIAR centres. A hard copy can be obtained from ICRISAT. Software to enable the database to become a CDS/ISIS application has also been developed. CDS/ISIS is a menu-driven generalized Information Storage and Retrieval System, designed and made available by UNESCO.

The International Union List of Agricultural Serials is a combined list of journal and serial titles indexed in AGRICOLA, AGRIS, and CABI. The book gives full bibliographic details of over 11,500 journals and serials published in 129 different countries, with titles in 53 languages. It can be obtained from CABI.

Appendix 3 gives a list of journals on agriculture in a broad sense. The list contains titles and addresses only, but most publishers will be glad to supply a specimen copy

if requested. It is also possible to ask a sister library to send a photocopy of the front and back cover of a journal, its page of contents, and the inside of its cover pages, which often present information about the editor, the editorial board, the scope covered, and subscription costs.

Appendix 4 lists newsletters of international (research) institutions.

Journals or bulletins that publish pages of contents give a good idea of the scope of a journal.

1.4.3 Pages of Contents

Non-profit and commercial organizations regularly produce journals consisting of the pages of contents of journals. Well-known within agriculture are:

Current Contents on Agriculture, Biology, and Environment, published by the Institute for Scientific Information, 3501 Market Street, Philadelphia PA 19104, U.S.A.;

Pages of Content = Paginas de Contenido = Pages de Matiers, published by Centro Internacional de Agricultura Tropical CIAT. The various journals cover the following subjects:

- General Agriculture;
- Plant Physiology;
- Plant Protection;
- Soils and Plant Nutrition;
- Pastures, Animal Production, and Nutrition;
- Agricultural Economics and Rural Development;

A Quarterly Bulletin of Contents, published by the International Livestock Centre for Africa ILCA. The Bulletins cover the following subjects:

- Forage Agronomy and Soil Science;
- Agricultural Economics and Rural Sociology;
- Animal Nutrition;
- Animal Breeding and Genetics;
- Animal Health and Veterinary Medicine.

1.4.4 Administrative Aspects of Journals

Shelf Order for Older Volumes of Journals

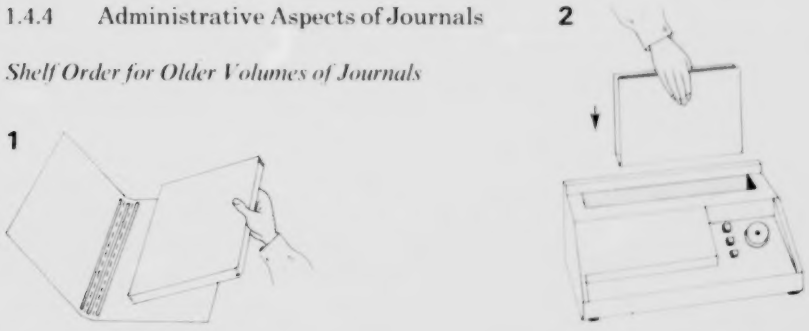


Figure 4 Bindo-matic. Binds up to 25 documents or 500 pages at one time. Precision-applied thermal glue electronically ensures that documents stay permanently bound.

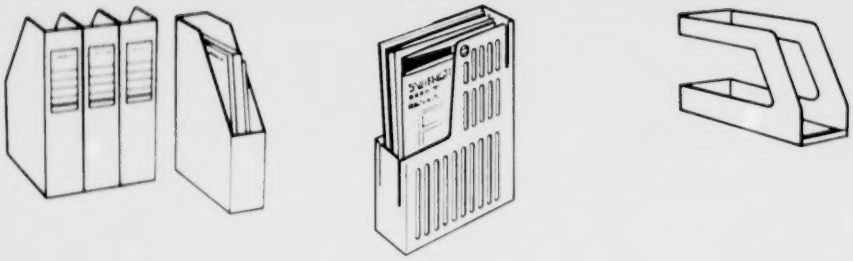


Figure 5 Boxes for storing journals and pamphlets

Older volumes of journals are often shelved in the alphabetical order of their titles. This shelf order has two disadvantages:

- If a subscription to a new journal is taken out, all the older journals will have to be moved to incorporate the new one;
- Journals do not always have clear titles. Users know them by different names. Is it *FAO Monthly Bulletin of Statistics* or *Monthly Bulletin of Statistics*? Is it *Globo Rural* or *Revista Globo Rural*?

A better shelving arrangement for journal volumes is to place them in the order in which the journals were acquired by the library. Each journal is given a 'J' number ('J' for journal). A new journal is given the latest number. This is written on a sticker on the cover of the journal. Shelf labels will show where Nos. 1, 50, 100, etc., start.

An alphabetical catalogue or list of journals will give access to the journals on the shelf. If this list is stored in a computer, it is easy to update.

When a volume of journals is complete, it should be bound, but this is a time-consuming and expensive process (Figure 4). Thin journals with soft covers can therefore be better kept in small boxes (Figure 5). More voluminous ones can stand on their own.

If money is available to buy back-issues, acquisitions on microfiche should be considered. Sometimes microfiches are cheaper. Even if they are not, they save a lot of space in a library.

Shelf Order for the Most Recent Issues of Journals

Figure 6 Set of shelves for the display of the latest issues of journals. Behind the front flap is space for preceding issues.

The latest issues of journals are kept in a set of shelves (Figure 6). The most recent issue is placed at the front of a sloping flap, which is hinged at the top. Behind the flap, there are two shelves with space for about eight of the preceding issues. The journals are arranged according to their 'J' number.

A more sophisticated but also more complicated system is to arrange the journals in some five to ten broad subject groups. If this system is adopted, the journal receives, besides its 'J' number, also a number representing its broad subject group.

Some journals contain information that has only a limited lifetime. These journals need not be kept for very long; nor need they be given a 'J' number.

Other journals have a lifetime of between three to five years. To save space in the library, only the volumes within this time span are kept. Each time a new volume becomes available, the oldest one is discarded.

Catalogue of Journals

For each journal, one card (Figure 7) is kept in a kardex (flat-lying) system (Figure 8). The cards are arranged in alphabetical order by the letter-for-letter system.

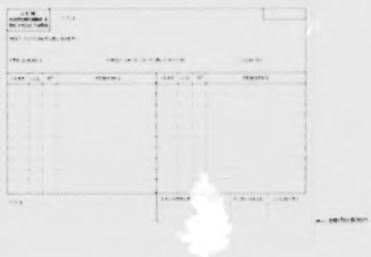


Figure 7 Kardex card. The small part of the card (below the perforated line) makes it possible to use a typewriter to fill in the card. After the relevant information has been typed on the card, it is removed from the typewriter and the small part is detached.

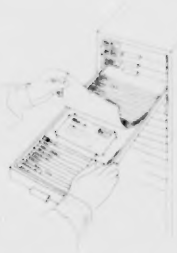


Figure 8 Kardex, a flat-lying journal register system.

Current and non-current journals are placed together in one system. A separate list is kept for the current journals; this is used for administrative purposes to check each year whether the subscription has been paid and or whether the journal is still arriving in the library. (See further in Section 4.3.3.)

1.5 Series

1.5.1 Selection Criteria for Series

Nearly every research institution in the world publishes its results in one or more of its own series of publications. A variety of names are used: *Bulletin of .....*, *Series of .....*, *Miscellaneous Paper*, etc. They are often published irregularly and are mostly offered in exchange or free of charge to anyone interested.

In the library, the administration of these series is difficult and time-consuming. The scientific value of their contents varies considerably, even within the same series. Often, their contents have a somewhat regional character, making it difficult to judge whether it is worthwhile having them in the collection.

This difficulty can be overcome by only including series from well-known international research institutions such as the Food and Agriculture Organisation FAO, the Empressa Brasileira de Pesquisa Agropecuaria EMBRAPA, and those belonging to the Consultative Group on International Agricultural Research CGIAR (e.g. IRRI, CIMMYT, CIAT, IITA). (See Appendix 2 for a list of abbreviations and Appendix 5 for the addresses of these institutions.)

The value of items in a series increases if they are catalogued so that they can be found, not only under the name of the series, but also under their author's name, and their title or subject.

1.5.2 Where to Find Series Titles

Many of the publications of international research institutions can be found in the book *Publications of International Agricultural Research and Development Centers* (1989), published by IRRI.

Publications of international organizations are announced in catalogues of the following publishers: Agribookstore; Josef Margraf; SATIS; TROPS Tropical Scientific Books. Their addresses can be found in Appendix 6.

The latest publications of international research institutions are usually announced in their newsletters (Appendix 4).

1.5.3 Administrative Aspects of Series

Shelf Order of Series

The sequence of series on a shelf is determined by the date of arrival of the first of the series in the library. Each series receives a number, which is written on a sticker gummed to each item in the series, preceeded by a 'S' (for 'Series'). Different series from the same institution are grouped together. Annual Reports are treated as being a special series of an institution. Labels on the shelves show where publications from an institution are kept. The labels can be made with the machine shown in Figure 9.

Sometimes, series consist of monographs, each treating different subjects in a way that they become equal to a book. In such cases, it is difficult to decide whether to

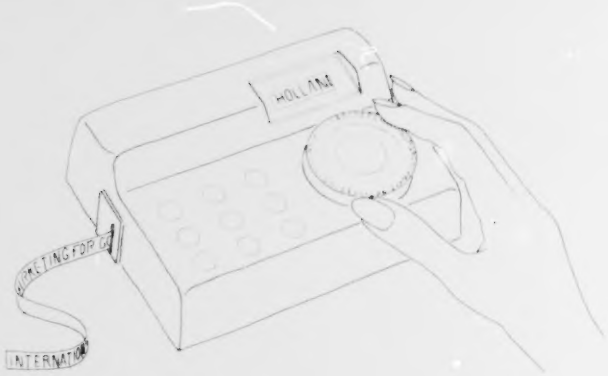


Figure 9 A label-maker, a machine for printing letters on tape

place the monograph with the books or to keep the series together. Most users remember the name of the institution publishing the series, rather than the author or title.

Catalogue of Series

For each publication in a series, one card is kept in a kardex system. The cards are arranged in alphabetical order of the institutions' names. Within each group, the cards are arranged in alphabetical order of the type of publication (e.g. Annual Report, Bulletin). Current and non-current series are registered in this catalogue. (See further in Section 4.3.3: Catalogue for Journals/Series.)

1.6 Books

1.6.1 Selection Criteria for Books

Only those books that are of direct use for the teaching and/or the research being conducted by the mother organization should be kept by the library. (For their selection criteria, see Section 1.2.)

Proceedings of congresses are often highly specialized. They are also expensive, whereas many of the papers in them are not relevant to the mother organization. Staff members attending a congress often receive the proceedings free of charge. Normally, it is organization policy that publications received by staff members become the property of the organization. They should therefore be kept in the library.

1.6.2 Where to Find Book Titles

Book titles can be found in publishers' catalogues, which, on request, will be sent to the library on a regular basis. Appendix 6 presents addresses of publishers of agricul-

tural literature. Their catalogues are probably the best place to look for interesting titles. Other places are:

- Abstract journals;
- Newsletters, under the headings: New Publications, Recently Published, or Publications Received;
- Book reviews.

Booksellers often prepare lists of book titles from various publishers, sometimes even arranged according to subject. Examples of such booksellers are Heffers in England, Livraria Portugal, Mundi Prensa Libros in Spain, and Livraria Nobel in Brazil.

Some booksellers (e.g. Bumpus Haldane and Maxwell) invite their customers to send a list of keywords on subjects handled by the booksellers. The bookseller regularly runs these keywords through a computer containing all new book titles. The result of the computer search is printed on small slips of paper, giving the book title and an abstract. These are then sent to the customer.

The Technical Centre for Agricultural and Rural Cooperation CTA has published *Tropical Agriculture: Selected Handbooks*. This catalogue is a guide to English language books on agriculture and rural development in the tropics and sub-tropics. It is a compilation of 405 standard reference works that are still in print and available. The subjects covered are farming, animal husbandry, fisheries, post-harvest operations, etc.

1.6.3 Administrative Aspects of Books

Shelf Order of Books

Figure 10 A blind stamp

Most users do not like catalogues. They want to browse through the collection. This means that the library should be of the free-access type. Problems with theft will have to be overcome by good surveillance, but it is almost impossible to prevent some books from being stolen. If books are marked with a blind stamp (Figure 10), indicating that they are the property of the library, this will discourage thieves.

In a library, books disappear not only because they are stolen; quite a few get 'lost' because they are misplaced on the shelf. Others are not returned by users who borrowed them. Often, the mother organization's own staff members are the worst culprits; they borrow books from one another or lend them to persons outside the organization without informing the library staff.

On the shelves, the books are arranged in broad subject groups. These groups are based on the Universal Decimal Classification/UDC. Within each group, the books are placed in alphabetical order of the first three letters of the author's name. (For an example of a list of broad subject groups, see Appendix 7.)

Catalogues of Books

For each book, cards are placed in catalogues of authors, titles, subjects, geography, and a shelf list. The cards are arranged in alphabetical order under the letter-for-letter system. If there are more books by the same author, the sequence will be determined by the year of publication, the most recent being placed first. (See further in Section 4.3.1: Catalogues for Books, Reference Works, Pamphlets.)

1.7 Pamphlets

1.7.1 Selection Criteria for Pamphlets

Pamphlets cover a category of publications containing less than fifty pages. They are thus reprints of journal articles, booklets, publications that form part of a series, and so on. A library receives a lot of material of this kind. Much of it has no scientific value or does not fit within the scope of the library, so a severe selection is necessary. Reprints are rejected because they are treated by documentation and information services, which include them in their databases. As an exception, some pamphlets, including reprints, will be kept, but only if they:

- Have a review character;
- Are written by staff members;
- Are about agriculture in the country where the library is located;
- Are from key persons ('stars');
- Are listed in the references of staff members' publications;
- Are about new research subjects;
- Are about new equipment, new measurement techniques, etc.;
- Are published in unexpected places (e.g. an article on crop breeding in a journal dealing with soil science).

1.7.2 Where to Find Pamphlet Titles

Interesting titles can be found in newsletters, abstract journals, and in the reference lists of interesting articles. More often, they are offered by several sources in amounts larger than a librarian appreciates.

1.7.3 Administrative Aspects of Pamphlets

Shelf Order of Pamphlets

Pamphlets are placed in the same broad subject groups as the books. Within each group, they are arranged according to the first three letters of their author's name.

The cards are placed in the catalogue for books. No separate catalogue is kept for pamphlets.

Pamphlets issued by international organizations like FAO, EMBRAPA, and the

CGIAR institutions will be brought together under the name of the institution and kept in boxes.

1.8 Reference Books

1.8.1 Selection Criteria for Reference Books

The selection criteria for books and journals can also be applied to reference books. Reference books, however, are not restricted to agriculture. They should be able to provide answers to all kinds of questions raised by users. This makes it difficult to decide which reference works to include. It depends on the situation.

Appendix 8 lists possible reference books. Not all of them need be acquired by the library, but it will be of help to the librarian just knowing that they exist and where he can order them.

1.8.2. Administrative Aspects of Reference Books

Shelf Order of Reference Books

All reference books should be kept together and arranged in the following groups:

- 'D: Encyclopedias, technical dictionaries, geographical information, glossary and linguistic dictionaries. Most of these dictionaries treat one subject. Those dealing with the same subject should be brought together under the same broad subject groups as used for books. If necessary, they could be given a sequential number of the order in which they were acquired. The code for placing will be of the following type:
  D(dictionary) 63(subject) 1(sequence number). Linguistic dictionaries should be placed in Group 801; encyclopedias in Group 0 9;
- 'A' Acronyms, 'DIR' Directories, and 'AT' Atlases are kept in separate groups, arranged within each group by sequential number;
- 'I' Information guides usually treat one subject. They should be arranged in subject groups, and within each group by a sequential number.

Specific bibliographies are not grouped together. Instead, they are placed with the relevant collections of books and pamphlets according to subject group.

Catalogues of Reference Books

Reference books should be treated in the same way as books and pamphlets and placed in the same catalogue. To bring them together in the classified catalogue, the following UDC codes are used:

- Group 'D' (038);
  Monolingual dictionaries 801.321.1;
  Bilingual dictionaries 801.321.2;
  Multilingual dictionaries 801.321.9;
- Group 'A' (083.73);
- Group 'DIR' (058);
- Group 'AT' (084);
- Group 'I' (02).

1.9 Miscellaneous Documents

Publishers, booksellers, and wholesalers of library equipment who send their catalogues to the library often send a new version each year. These catalogues should be kept in boxes, arranged alphabetically under the name of the publisher, bookseller, or wholesaler. The reasons for doing this are the following:

- Users often ask for these catalogues;
- The same catalogue arrives at the library in different ways and at different times. By keeping them together, the librarian can easily check whether he already has the catalogue.

2 Ways of Overcoming a Shortage of Funds

Most libraries suffer from a shortage of funds, but there are various ways of overcoming this, as will be explained below.

The Third World Academy of Sciences has set up a donation scheme under which it is willing to consider requests from libraries in developing countries for important and badly-needed scientific textbooks. Requests for such books can be made on forms that can be obtained from:

The Office of the Executive Secretary
Third World Academy of Sciences
C/o International Centre for Theoretical Physics ICTP
P.O. Box 586
34100 Triest
Italy

The titles, authors, and publishers of the requested literature should be stated on the form.

The British Book Council also considers requests for books. A representative of the Council can be contacted through the British Embassy.

The English Language Book Society/ELBS is funded by the Overseas Development Administration of the British Government and is administered by the Low-Priced Books Department of the British Council. The Society makes available unabridged editions of British publishers' textbooks, chosen by specialists for their value to students in developing countries. The books are priced at between one-third and one-half of the price of the cheapest publishers' editions. Catalogues giving full information about individual titles can be obtained from the original publisher or his agent. Orders for books should be sent to:

The English Language Book Society
The British Council
65 Davies Street
London W1Y 2AA
United Kingdom

In many countries, the shortage of foreign currency hinders the import of publications. In some of these countries, UNESCO coupons, the values of which are expressed in U.S. dollars, can be purchased with national currency and used to pay for the foreign book purchases. In every user country, there is a body responsible for the sale of the coupons. Further information and a list of the national distributing bodies can be obtained from:

The UNESCO Coupon Office
7 Place de Fontenoy
75015 Paris
France

Representatives of international aid organizations often visit institutions in developing countries, and sometimes spend some time in the library. For these visitors, the library should keep a list of publications it would like to have, in the hope that the visitors will be willing to supply or fund them. For books that are urgently needed, of course, one cannot merely wait for a visitor to turn up. To cover these cases, aid organizations could place a small deposit with one of the international booksellers, Afterwards, on a regular basis, the library could justify the way it spends the money.

Aid organizations are seldom willing to fund subscriptions to journals because in this way they commit themselves for long periods. Sometimes, they can be persuaded to pay a subscription for a period of five years, with a commitment to pay once only. Subscriptions are even cheaper that way.

The major donation schemes in existence have been described by Carol Priestly in 'The Book Famine: A Selective Directory for Book and Journal Assistance to Universities in Africa'. It was first published in the *Journal of the International African Institute* (1990) Vol. 60 (1): pp 135-148, and is available as a reprint from:

International African Institute IAI
Lionel Robbins Building
10 Portugal Street
London WC2A 2HD
United Kingdom.

3 Library Personnel

The personnel required in a library and the education and skills they should have will, of course, vary from one library to another. Ideally, a library should have a librarian and one or more library attendants (Figure 11).

Figure 11 Library attendants at the loan desk

The librarian will be responsible for:
- Overall management and policy-making;
- The collection of publications;
- Classification and documentation;
- Reference and information work;
- User instruction.

The library attendants will be responsible for:
- Book and journal administration;
- Cataloguing and book preparation for shelving;
- Loan administration;
- Day-to-day affairs.

Few libraries have unlimited resources, so priorities may have to be set for the people the library will serve. The following ranking order could be observed:
- Staff and students of the mother organization;
- Persons outside the organization, but working in similar fields;
- Others.

In performing their tasks, the library personnel will use:
- The library's own collection;
- Collections of other libraries (inter-library loans, resource sharing);
- Information made available by documentation and information services, online retrieval, databases on compact discs.

3.1 Training Possibilities for Library Personnel

Good personnel are the backbone of a library, but well-trained people are not always available. They will therefore have to be trained on the job, or sent to attend courses

in or outside the country. Before people are sent on courses, however, a clear description should be made of the work the library will be required to do. This should be followed by an analysis of the strong and weak points of the persons who will be appointed as library personnel. A comparison of these points with the work to be done will identify the training needs.

Information on training can be found in:

- *International Guide to Library and Information Science Education : A Reference Source for Educational Programs in the Information Fields Worldwide*. Eds. J. Riss Fang and P. Nauta. Saur 1985. IFLA Publication 32. 537 pp.
- *Study Abroad 1989-1990-1991*. Vol 26. UNESCO 1989. 1394 pp.;
- *FID News Bulletin*, which includes a newsletter on training programs for information personnel.

Possibilities for grants can be explored in the books listed under the heading 'Grants' in Appendix 8. Appendix 10 gives the addresses of some library organizations. The International Federation of Library Associations IFLA will supply the addresses of specific library organizations.

3.2 Job Descriptions for Library Personnel

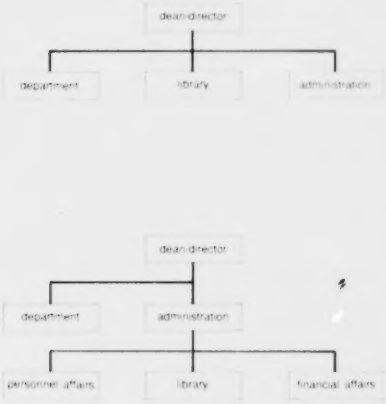


Figure 12 Possible organizational schemes of a university or research institution, showing the position of the library

Within an organization where personnel can change their positions quite rapidly, a certain consistency in careers can be guaranteed if job descriptions are clearly recorded on paper.

In job descriptions for library personnel, attention should be given to the place the library occupies within the mother organization. This place can have consequences for the salaries of the library personnel. The two possible places the library might occupy are shown in Figure 12. These are:

- The library is at the same level as the other departments of the mother organization;
- The library is part of the office administration of the organization, or at least at the same level.

In the job description, the position of the person concerned in relation to the librarian or to any subordinate persons should be made clear.

All aspects of the job should be analyzed and recorded. The responsibilities that go with the job should be clearly set out. This will protect the person concerned against staff members or others who expect him to do things that are not part of his job. People often try to enlist the services of library personnel for their own purposes.

When the analysis of the weak and strong points of the library personnel is compared

with the job descriptions, the training needs will become definitive. If the person concerned is interested and there are no constraints, the selection of a course can start. The person should be made aware of his future prospects if he successfully completes the course.

3.3 Journals for Library Personnel

Nowadays, developments in library and information science are intensive and fast, and it is important that library personnel keep up with those developments. The library should therefore subscribe to some of the journals that cover these subjects. Appendix 9 gives a list of such journals. The list also includes journals on very specific subjects. If changes are being contemplated in the operation of the library, a subscription to some of these journals could be very useful.

4 Library Management

When a new library is being started or an existing one is being rehabilitated, decisions have to be made on many matters: ordering, shelf order, cataloguing, classification, accessions, loan policy and administration, computerization, documentation, services, statistics, and budget. All these matters will be treated in separate sections in this chapter, but first, the philosophy behind them will be explained.

A library is there, above all, for its users. Each decision that is made should take their wishes into account. Users are not interested in whether a library scores high by the standards of library science. What they want is to get the information they need quickly and without fuss. This general philosophy has various consequences, which will be discussed below:

One catalogue should cover all the various kinds of publications in the library. In this way, the user does not have to know whether what he is looking for is a book, a pamphlet, an FAO publication, or part of a series;

If publications are known under different names, they should not be entered in the catalogue strictly by cataloguing rules. Instead, they should be entered under their different names to ensure that users can find them;

There should be one shelf order, so that call numbers for different collections of publications have the same structure;

Users should have free access to all the publications in the library. They like to browse through the collection, ignoring tools like classified catalogues, and ignoring the fact that the most popular publications are not on the library shelves, but on the desks of their fellow library users;

Users should be made aware of new publications. The latest issues of journals and newly-arrived books should be on display;

On the question of whether journals should be circulated, it must be said that most library users like to receive the journals in their own offices where they can sit and read them at their leisure. But, from the library's point of view, journal circulation has the following disadvantages:

- Some journals have to be constantly available in the library. If they are also circulated, a double subscription would be needed;
- Journal circulation, even if computerized, is very labour-intensive;
- Unless the circulation is strictly controlled, journals easily get lost;
- If journals are circulated, users will visit the library less often and will not be aware of other newly-arrived publications;

A reading table full of unimportant journals will not be used. That implies that the one or two interesting ones among them will also be missed;

Most users have only limited time to read, so they should not be confronted with an overwhelming number of new publications. A strict selection has to be made;

When an existing library is being rehabilitated, outside experts are often asked to help. Each of these experts has his own ideas, overstressing the advantages of his own system and exaggerating the disadvantages of any others. In reality, the differ-

ences between the various systems are not that big. But an expert proves his existence best by overemphasizing the chaos he found and describing the many changes he felt were needed to clean up the mess. Nevertheless, every change in shelf order or classifying system means a great deal of work. And if the change cannot be completed, the result will be two systems operating in the one library. Imagine what a third expert with totally new ideas would do to these two already existing systems! The result could only be chaos! It is therefore often wiser to accept a somewhat imperfect situation and to avoid making too many changes;

In every library, there are backloads (i.e. publications not placed in the library collection or in its catalogue). Most of these works are old and unused. Some people will say they are not used because users do not know of their existence. Other argue that they are not very interesting. Most users will have already browsed in this kind of literature and will have selected the more useful and interesting works. Backloads do not deserve a high priority. A librarian's first task is to deal with the newly-arrived publications and offer them to the users. If he starts on the backload, he must make a severe selection, and must organize the work in a way that does not interfere with the other work in the library.

4.1 Analyses of the Use of the Library and Its Users

As was discussed briefly in Section 1.2 (Selection Criteria in General), the analyses of how the library is used and by whom are invaluable in deciding which publications to include in the collection. These analyses can also reveal information that will be helpful in managing the library.

An analysis of use can be done by analyzing the loan slips, which tell 'Who borrowed what?' Another way is to analyze the lists of references in publications by staff members. These lists tell even more clearly which publications have actually been consulted.

The 'Who?' can be divided into staff members and students of the mother organization, persons from outside but working in similar fields, and others. If the management of the mother organization has doubts about whether the library is being used, this analysis may remove those doubts. This information might also convince aid organizations that many people will benefit from any support they give. Other institutions using the library, after seeing the results of this analysis, might feel that some support on their part is warranted.

The 'What?' can be divided into kind of publication, age of publication, language of publication, and who the publication cites.

The results of these analyses can be compared with the existing policy in the library. Sometimes, this may reveal that changes are necessary. Some considerations might be:

- Are the number of monographs used in accordance with the number of monographs bought or acquired?
- If many of the borrowed publications belong to the 'grey literature', this could mean that the library should give more attention to establishing exchange agreements and asking for publications free of charge;
- If many publications included in reference lists are not available in the library, this

could mean that inter-library loans should be better organized or that more funds are needed to buy publications;

If many articles are included in reference lists, are they from well-known journals or from more obscure ones? If from obscure journals, this could mean that the library ought to give more attention to creating its own documentation system. Or it could mean that users should be encouraged to use abstract journals and online facilities;

The age of publications will reveal which of the older works should be retained in the collection. This information will also be valuable when weeding out the collection or dealing with backloads;

Research is often a continuation of research already done by an author. This might justify many self-citations, but it could also mean that no literature retrieval – or not enough – was done. This, in turn, could mean that the library ought to give more attention to its reference services, to abstract journals, or to online facilities.

The advantage of analyzing the loan slips or reference lists is that the actual use of publications is registered. In contrast, in reply to written or oral enquiries, people do not always tell what they actually used, but include what they think they ought to have used. The disadvantage of 'use analysis' is that it provides no information about any other use of the library. It does not, for example, reveal whether a user read an article or looked up some information in a reference book. This kind of information can only be gathered via enquiries or by observing the user at work in the library.

4.2 Ordering

After a librarian has decided which titles he will order, ask for under an exchange agreement, or acquire as a gift (all from now on referred to as 'ordered'), he should check whether they are already in the collection or whether they have already been ordered. For each book that is ordered, a card should be prepared and kept on file in alphabetical order of the author's name. When the book arrives, the card should be removed from the file. This prevents duplication.

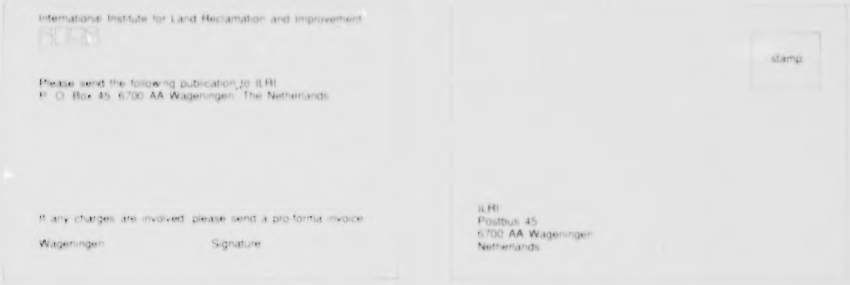
Deserving special attention are new editions of publications. Does the new edition really add any new information? A comparison of the number of pages is usually a good indicator.

Publishers' catalogues often announce forthcoming publications that are not yet finished. Sometimes, it takes quite a while before they become available. Then, they often appear under a different title or by a different author. To avoid confusion, it is often better to wait with ordering such publications until they are definitely available.

Payment

Payment for purchases can be made with UNESCO coupons, bank cheques, or any other suitable means. To avoid laborious procedures, a deposit account could be opened with one or two well-known booksellers.

Appendix 11 gives an example of an international standard contract for exchange agreements. Asking for publications in exchange is only possible, of course, if the mother organization is also publishing.


International Institute for Land Reclamation and Improvement

Please send the following publication to ILRI
P. O. Box 45, 6700 AA Wageningen, The Netherlands

If any charges are involved, please send a pro forma invoice

Wageningen Signature

stamp

ILRI
Postbus 45
6700 AA Wageningen
Netherlands

Figure 13 Example of a request card for publications

Numerous organizations offer their publications free of charge. A request on a pre-prepared card or letter (Figure 13) often gets good results. In some cases, these works can only be ordered with standard order forms or according to certain rules. For the following organizations, these standard forms or information on how to order should be gathered in advance:

- European Community EC, Office for Official Publications of the EC, 5 Rue du Commerce, Postbus 1003, Luxemburg;
- Food and Agriculture Organisation FAO, Distribution and Sales Section, Via Delle Terme di Caracalla, 00100 Rome, Italy;
- Micro Info, 300 North Zeels Road, Box 91, Ann Arbor, Michigan MI 48106, U.S.A. Distribution centre for publications of NTIS, GPO, World Bank, etc.;
- National Technical Information Service NTIS, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia VA 22161, U.S.A. NTIS is a self-supporting agency, established to foster technological development through the dissemination of government-funded research findings and results. Available are over 1.6 million technical reports describing the results of research conducted by the most prestigious government, university, and corporate research organizations in the U.S.A. and abroad. Publications made available through NTIS are also supplied by Micro Info;
- UNESCO, Division of Book Development and International Cultural Exchanges, 7 Place de Fontenoy, 75700 Paris, France;
- United States Agency for International Development USAID, Research and Development Report Distribution Center, P.O. Box 353, Norfolk, Virginia VA 23501, U.S.A;
- U.S. Government Printing Office GPO, Superintendent of Documents, Washington DC 20402, U.S.A. GPO complements NTIS by publishing all popular report titles originating from U.S. government agencies. As the principal publishing agency of the Federal Government, GPO has in stock a collection of some 25,000 to 30,000 titles, including government and consumer publications, science and technology, legislative documents, and congress reports. Some 3,000 titles are added to the collection each year;

- University Microfilm International UMI, 30-32 Mortimer Street, London, W1N 7RA, England. UMI publishes doctoral dissertations at the rate of 30,000 new titles a year. These products are available in hardback, paperback, or microform. The UMI 'Datrix' computer stores the titles and bibliographic data on 700,000 dissertations. On request and on payment of U.S. $30, a computer search can be done in a certain field of interest, giving up to a maximum of 150 titles;
- World Bank, Publication Unit, 1818 H Street North West, Washington DC 20433, U.S.A.;
- World Meteorological Organization, Publication Sales Unit, Avenue Guiseppe Motta 41, 1211 Geneva 20, Switzerland.

4.3 Catalogues

The publications in the library should be registered in the following card catalogues:

- Catalogue for books, reference works, pamphlets, and interesting publications as part of a series;
- Catalogue for journals, newsletters, publications that contain articles on more than one subject;
- Catalogue for series. Publications often from (research) institutions, each treating a separate subject, with a series title in common.

4.3.1 Catalogues for Books, Reference Works, and Pamphlets

For books, reference works, and pamphlets, cards could be prepared for the following catalogues:

- Author Catalogue: The cards are arranged in alphabetical order of the author's name. If no author's name is available, the name of the sponsoring or publishing organization determines the order;
- Title Catalogue: The cards are arranged in alphabetical order of the first word of the title, disregarding unimportant words like 'The' or 'A'. This catalogue is not always kept in a library, which is understandable because it is of little extra help in retrieving titles and involves extra work;
- Classified or Subject Catalogue: The cards are arranged by subject on the basis of the Universal Decimal Classification;
- Geographical Catalogue: The cards are arranged by geographical location. If many questions are expected on certain countries or regions, this catalogue can be very useful;
- Shelf List: The cards are arranged in the same order as the publications on the shelf in the library. A shelf list is useful in keeping a check on the library stock. For each collection (books, pamphlets, various groups of reference works), a shelf list should be made. A shelf list should not be used as a classified catalogue because it ignores the fact that publications often treat more than one subject.

At the very least, a library should keep an Author Catalogue and a Classified Catalogue.

What to Enter on a Catalogue Card

Figure 14 shows an example of a catalogue card, which has the following information (the 'book description') entered on it:

- Author (or authors);
- Call number;
- Title;
- Place of publication, publisher, year of publication;
- Number of pages;
- Series title, if applicable;
- Classification code.

G. Naber and P.M. van den Heuvel — 631.6 NAB

Drainage: An Annotated Guide to Books and Journals. Wageningen: ILRI 1984. 47 pp. (Bibliography. ILRI. No. 18) Annotations.

UDC 631.62 (02)

Figure 14 Example of a catalogue card

Book descriptions can be made in accordance with the American Library Association's Anglo-American Cataloguing Rules or with the International Federation of Library Associations' International Standard Bibliographic Descriptions for monographic publications, for non-book materials, and for series.

Production of the Cards

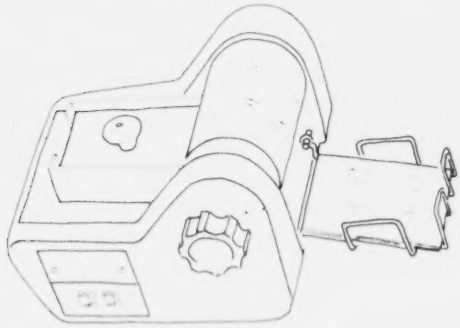


Figure 15 A small stencil machine for preparing catalogue cards

The catalogue cards can be produced with the help of a Minigraph, a small stencil machine (Figure 15). Weber, 711 W. Algonquin Road, Arlington Heights, Illinois IL 60005, U.S.A., produces the Minigraph 120. A new one will cost about U.S. $2,000. Besides the minigraph, special stencils and library cards will be needed, both of which are rather expensive.

For the example given in Figure 14, a total of five cards need to be produced. On each card, the relevant

item of information for each catalogue is underlined. Two cards will be entered in the Author's Catalogue: in one, 'Naber' will be underlined; in the other, 'van den Heuvel'. One card will be placed in the Classified Catalogue, with the number '631.62' underlined. The word 'Drainage' will be underlined for the Title Catalogue, and the number '631.6 NAB' for the Shelf List.

The cards are filed in the catalogues in accordance with certain rules. If publications have the same author or the same classification code, the cards are arranged by date of publication, the most recent being placed first.

4.3.2 Call Numbers

The call numbers that are given to the various types of publications are summarized in Table 1.

Table 1 Various types of publications and their call numbers

Publications	Call numbers
Books	55*) DER
Journals, abstract journals	J**) 1***)
Series, Annual Reports	S 1, S 5, S 10****)
Pamphlets	55 1
Reference books:	
Encyclopedia, dictionary, geographical reference works	D 55 1
Directories	DIR 55 1
Atlases	AT 55 1
Information guides	I 55 1
Acronyms	A 55 1

* Subject code
** Collection type
*** Sequential number
**** In assembling publications from the same institute, allowance should be made for new series by keeping some numbers in reserve

4.3.3 Catalogues for Journals/Series

Journals, newsletters, and all publications that cover more than one subject are placed in the catalogue for journals. For each journal, a kardex card is prepared and filed in a kardex system. The cards are arranged in alphabetical order of the first word of the journal's title. There is only one catalogue for current and non-current journals. Whenever a new issue of a journal arrives in the library, its volume number and issue number are filed on the card.

Series, which are often publications from (research) institutions, each publication treating a separate subject with the series title in common, are placed in the catalogue for series. For each series, a kardex card is prepared. The cards are arranged in alphabetical order of the first word of the institution's name. If the same institution produces

more than one series, the order will be decided by the name of the series. An institution's annual reports are treated as a series.

4.3.4 Stock Book

Many libraries have what is called a stock book. As each new publication arrives in the library, various items of information about it (date of arrival, author, title, publisher, price) are entered in the stock book. Often, nobody in the library knows why this stock book is being kept. Sometimes, library personnel say that it is there for administrative purposes or to enable statistical information about the library to be gathered. But it is clear that it costs quite a lot of time to keep up. For that reason, it might be wise to consider its advantages and disadvantages, and afterwards decide whether it ought to be continued or not.

4.3.5 Computerization of the Catalogues

Producing cards by hand and filing them in the catalogues is a time-consuming process. Since a minigraph costs about as much as a computer, it is worthwhile considering the computerization of the catalogues.

In a card catalogue, a title of a book can only be retrieved on the first word of the title. In a database, it can be retrieved on each word of the title, on year of publication, or on language of the text. The possibilities for retrieval increase tremendously. Once the information has been stored, it can be selected in various ways and can easily be reorganized. For staff members with a special interest, lists of titles can be produced on a regular basis. An accession list arranged per subject is easy to compose. A computer in the library opens up endless possibilities.

But, there is one great disadvantage to computers. They need maintenance and, if they break down, sophisticated knowledge is needed to repair them. Often, parts have to be replaced, and have to be paid for in foreign currency. If the catalogues are stored in a computer and this computer is 'down' (i.e. not working), users have no access to the publications. If a broken-down computer cannot be repaired and money to buy a new one is lacking, the library faces a tremendous backload. (See also Section 4.7: Computerization of the Library.)

4.4 Classification System

If a library has a classification system already in use, there should be very good arguments for changing to another system. Changing from one system to another is extremely laborious and when not properly organized gives backloads, the plague of every librarian.

Choosing a classification system on the basis of a comparison of existing systems costs a lot of time and demands some experience with such systems. Each system has its advantages and disadvantages, and these are even different for different types of libraries.

With the idea that a classification system should be adapted to the library's own circumstances, many people develop their own systems. Even if the results are better than any of the existing systems, this costs a lot of effort. Often, self-created systems prove unable to cope with new developments within a discipline, or they are of limited value if the direction of research of the mother organization changes. In these kinds of self-developed systems, it always becomes difficult to fit in an increasing number of publications about an increasing number of new subjects.

There are always these helpful staff members willing to help prepare a classification system. But, in general, they are not familiar with such systems, and are only acquainted with one or two disciplines. Within these disciplines, they tend to develop a system with many groups, while treating other disciplines only very broadly.

Well-known classification systems like Dewey, Library of Congress, or the Universal Decimal Classification UDC have many advantages. For an agricultural library with a scientific and technological character, and containing books, but also pamphlets, which often deal with very specific topics, UDC is the *primo inter pares*.

Information on UDC can be obtained from the Federation International de Documentation FID, P.O. Box 90402, 2509 LK The Hague, The Netherlands. See also: *UDC: A Brief Introduction* by G. Robinson (FID 1984, 8 pp.) This publication sums up which introductory guides to UDC are available and in which languages, and advises on which part of UDC to buy.

Sometimes, when using UDC, one may find it hard to decide which code to choose. For that reason, once a decision has been made, it should be recorded on a library card. The cards are arranged by keywords describing the aspect or subject on which the decision was made.

4.5 Accessions

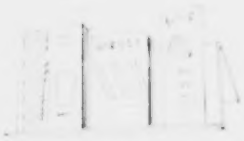
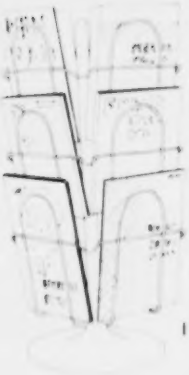


Figure 16. Shelf for the display of books

Every time the word 'library' is used in this book, it implies 'library and information services'. Part of a library's task is to collect, order, catalogue, and keep its publications. Another very important part of its task is to disseminate the acquired information among its users. This can be done in the following ways:

- By displaying newly-acquired books (Figure 16) and the latest issues of journals (see Figure 6);
- By displaying other publications, series, pamphlets (Figure 17). After a strict selection has been made of which to include in the collection, a further selection of which to display is needed. It defeats its purpose if too many publications are on display;
- By supplying, on the day a new journal issue arrives, copies of its table of contents to staff members known to be interested in its subject matter; or, by supplying copies to all staff members each week or fortnight;
- By disseminating information on a personal basis to all persons concerned. This is a very fruitful activity because it brings the librarian into regular contact with staff members. The information disseminated in this way need not be limited to publications, but might also concern forthcoming workshops or congresses;



By preparing a *Current Awareness Bulletin* or *Accession List* of newly-acquired publications, with or without an abstract with each title. (An example of the cover and a page of an *Accession List* is given in Appendix 12.)

Figure 17. Periodicals rack for the display of pamphlets

4.6 Loan Administration

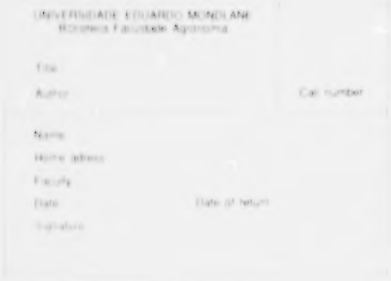


Figure 18. Example of a loan slip

Pre-prepared slips are used for the loan administration. An example is shown in Figure 18. The slips are arranged in two ways:

- In alphabetical order of the name of the user. In this way, it can quickly be seen who has borrowed which publications;
- In the same order as used for the shelf list. In this way, it can quickly be seen what title has been borrowed and by whom.

For a proper loan administration, certain rules have to be set. (See also Appendix 17: Library Regulations.)

Opening Hours

The opening hours need not necessarily coincide with the working hours of the library staff. Sometimes, it is useful to open the library half an hour or so later and to close it earlier to give the staff the opportunity to deal with work that needs concentration.

Who Can Borrow?

It is quite understandable that persons outside the mother organization are not allowed to borrow from the library. If they do and the books are not returned on time, it is very time-consuming to get them back, especially if transport is limited and mail services are unreliable. Exceptions could be made for persons recommended by staff members.

What Can Be Borrowed?

Books, pamphlets, and series can be borrowed. Reference works, the latest issues of journals, and older journals cannot be borrowed. If books are frequently used and if it is not possible to buy extra copies, the books can only be consulted in the library.

How Long/How Many?

Figure 19 A book trolley

A book could be borrowed for, say, two weeks, and a maximum of four books could be borrowed by one person at one time. For people doing research or working on a publication, two weeks is not long and four books might not be enough. In such cases, exceptions can be made.

If books are not returned, a reminder can be sent after a fortnight. No new books can be borrowed until the others have been returned.

Sometimes, people who do not return books on time have to pay a fine, but it has never been clearly proved that imposing a fine improves the borrowing behaviour of users.

Returned books, but also books just briefly consulted in the library, should not be shelved by users. Many books 'disappear' because they are shelved in the wrong place. Any shelving should be done by trained library staff. Returned books could be placed on a book trolley (Figure 19), to be shelved by the staff at their convenience, say once a day. Kick-steps, as shown in Figure 20, will enable them to reach the higher shelves, or to be seated when shelving lower shelves.

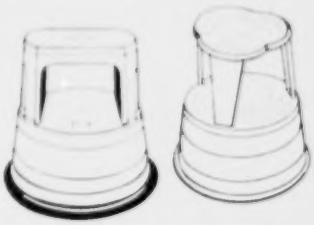


Figure 20 Kick-steps facilitate shelving

4.6.1 Inter-Library Loans

If library users often consult abstract journals or have access to online facilities, they will find many interesting titles that are not available in the library. In such cases, these documents might possibly be obtained from the following organizations:

British Library: Document Supply Centre. Its stock of documents includes 200,000 journals, 3,000,000 reports, 500,000 theses, 300,000 conference proceedings, and 3,000,000 books. The Centre uses postal request forms which are prepaid by means of coupons attached to them. Each coupon is valid for a photocopy of up to 10 pages. One booklet of coupons costs U.S. $140. Further information can be obtained from: Customer Services, The British Library Document Supply Centre, Boston Spa, Wetherby, West Yorkshire LS23 7BQ, England;

Centro Internacional de Agricultura Tropical CIAT. CIAT offers *Paginas de Contenido = Pages of Contents = Pages de Matiers*. Photocopies of the articles can be requested from CIAT Servicio de Fotocopias, Unidade de Informacion, Apartado Aereo 6713, Cali, Colombia. For addresses in Asia and Africa, the price of one photocopy is U.S. $0.20; for addresses in the Caribbean, Latin America, and other countries, the price is U.S. $0.30. Payment is possible in various ways (e.g. by using coupons issued by CIAT);

International Livestock Centre for Africa ILCA. ILCA produces a quarterly *Bulletin of Contents*. To each library in Sub-Saharan Africa receiving these bulletins, ILCA will provide, free of charge, a maximum of 30 photocopies drawn from articles listed in them. Library and Documentation Services ILCA, P.O. Box 5689, Addis Abbaba, Ethiopia;

Technical Centre for Agricultural and Rural Cooperation CTA. In addition to its other services, CTA supplies photocopies free of charge to African, Caribbean, and Pacific (ACP) countries. More information can be obtained from CTA, QAS Documentation, P.O. Box 380, 6700 AJ Wageningen, The Netherlands;

CAB International, Document Delivery Service. This Service can supply photocopies of most items in their abstract journals. Charges (including first-class air-mail delivery): £5.00 per item of up to 15 pages, plus £0.30 per additional page. Frequent users of the service could open a deposit account. All requests must be made on a form included in most CABI abstract journals. These forms should be sent to: CAB International, 56 Queen's Gate, London SW7 5JR, England;

AGLINET, which is a voluntary association of large agricultural libraries collaborating to improve the provision of publications in the wide field of agriculture and related sciences. The network is coordinated by the David Lubin Memorial Library at FAO in Rome, Italy. The following agricultural libraries, among others, form part of AGLINET:

- David Lubin Memorial Library, FAO, Via delle Termi di Caracalla, 00100 Rome, Italy;
- Agricultural University Library, P.O. Box 9100, 6700 HA Wageningen, The Netherlands;
- Centro Nacional de Informacao Documental Agricola, Esplanada dos Ministerios, Anexo 1 do Ministerio da Agricultura, Bloco 'B' Ala Oeste, Terreo e 1 andar, Ciaxa Postal 10.2432, 70043 Brasilia DF, Brasil;
- Centro Interamericano de Documentacion e Informacion Agricola (CIDIA), Bibl[illegible] Conmemorativa Orton, Apartado Postal 55, 2200 Coronado, San Jose, C[illegible] Rica;

National Agricultural Library NAL of the U.S. Department of Agriculture. Requests should be submitted on the American Library Association's Interlibrary Loan Request Forms. More information is available from: NAL, Office of the Deputy Director for Technical Information Systems, Utilization Section, Beltsville, Maryland MD 20705, U.S.A.

If a publication issued by one of the well-known international (research) institutions is wanted, it is often easier and quicker to request it directly from the institution instead of borrowing it.

4.7 Computerization of the Library

Section 4.3.5 discussed the computerization of cataloguing, stating that this increases the retrieval possibilities enormously. Before using a computer for cataloguing, however, one would be wise to gain some experience with the machine by using it as a word processor to prepare accession lists and lists of journals and series available in the library.

The next step could be to start online literature retrieval by connecting the microcomputer to one or more vendors or host computers such as DIALOG and ESA IRS. If telephone lines are unreliable, compact discs could be used instead. The computerization of these activities is less vulnerable to a breakdown of the machine because the work can easily be postponed or even stopped.

After some experience has been gained and maintenance is assured, one could then proceed to computerize the catalogues.

(Computerizing the loan administration only pays off if many publications are borrowed or returned each day.)

Appendix 13 presents a possible computer configuration for a small library. This is merely an example. Many other possible combinations of computers, printers, modems, etc., are equally good. In the end, the differences between the various possibilities are not that big; each type, brand, and combination has its advocates.

More information on computerization is available in the articles by Stuart J. Kolner, Librarian and Associate Professor, Library of Health Science, University of Illinois, College of Medicine, 1601 Park View Avenue, Rockford, Illinois IL 61107, U.S.A. These articles are:

- 'The IBM PC as an Online Search Machine:
- 'Part I : Anatomy for Searchers'. In: *Online* January 1985;
- 'Part II : Physiology for Searchers'. In: *Online* March 1985;
- 'Part III: Introduction to Software'. In: *Online* May 1985;
- 'Part IV: Telecommunication and Crosstalk XVI'. In: *Online* July 1985.

Focusing on the software available for use in a library is the book: *Microcomputer Applications for Online and Local Information Systems : A Comparison of 30 Software Packages* by The Netherlands Association of Users of Online Information Systems. It was published in 1987 by VOGIN, C/o Library Gorlaeus Laboratory, P.O. Box 9502, 2300 RA Leyden, The Netherlands. The abstract included in the book states:

> 'Three types of software have been tested which can be used on IBM compatible microcomputers:
>
> - Programs for terminal emulation and communication;
> - Programs for conversion of received data;
> - Programs for storage and retrieval of literature in local databases.
>
> With software for these three applications, data can be downloaded from external computers and used directly to build a local documentation system.'

4.8 Documentation

Documentation means making descriptions of articles in journals, chapters in books,

and papers in congress proceedings, and placing these descriptions in the catalogues of the library. Current bibliographies and abstract journals – today also available through host computers or vendors – offer the same kind of information. Is there, then, any need for documentation within the library?

Online retrieval is expensive and foreign currency is needed to pay for it. Although it will give a list of interesting titles, often with abstracts, the original papers may not be available in the library. Besides, the list may not contain publications about agriculture in the country where the library is situated, especially if they are published in lesser-known journals.

Documentation within a library has one great advantage: not only can titles be retrieved, but the publications themselves are directly available. This documentation can concentrate on exactly the subjects that staff members are interested in. Documentation, not repeating what has already been done by documentation and information services, but supplementary to them, is very useful for library users.

For criteria on what to include in this documentation, see Section 1.7.1: Selection Criteria for Pamphlets.

4.9 Library Services

Besides the services already discussed – loans, inter-library loans, accession lists, and other ways of presenting materials acquired by the library – the following services could be offered:

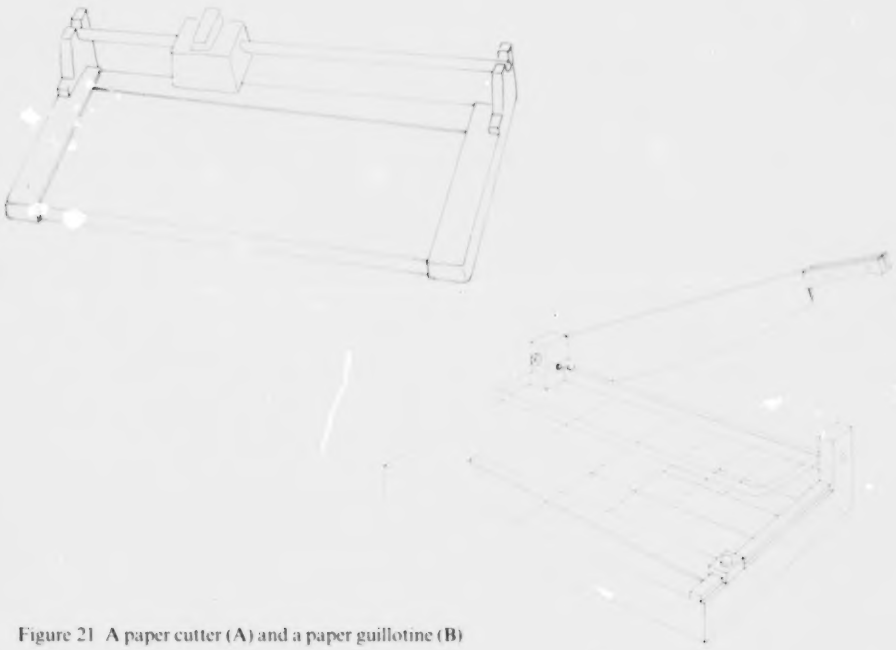


Figure 21 A paper cutter (A) and a paper guillotine (B)

Photocopying machine: To be used by the users and by the library staff to supply staff members with documents they request. The machine will not be used to copy non-library materials;

A paper cutter (Figure 21A) or paper guillotine (Figure 21B): A useful piece of equipment to trim photocopies or other papers to size;

Microfiche reader (Figure 22): Some catalogues from other (often large) libraries are available on microfiches. Some publications are also available on microfiche. This makes them cheaper to acquire and they take up less space;

Question-and-Answer Service: The library staff will be asked to perform all kinds of reference work for staff members. A request form for such work is shown in Figure 23. These forms should be available at several places in the organization.

Figure 22 A microfiche reader

Name

Adress Room number

Please send information on
(give as many details as possible)

The following information on the above subject is already available

Wageningen Signature

Figure 23 Request form for Question-and-Answer Service

4.10 Statistics

In libraries all over the world, lots of data are gathered: number of books, number of visitors, other activities. Somewhere in the past, information on these subjects was needed and a regular count was started. Once started, it simply never stopped, even if the information is no longer required. And although, if properly organized, counting does not take much time, gathering useless information is a total waste of effort.

Of course, to manage a library properly, some information must be gathered. So, what is needed is the following:

The number of publications, because that will determine:

- The number of catalogue cards required (5-6 times the number of publications) and the number of stencils;
- The metres of space required on the shelves (about 30 books to one metre, about 100-150 reports to one metre);

- The number of persons needed for cataloguing and preparing for shelving (one person can handle about 30 publications a day, not including the preparation and filing of the cards) and the number of persons required for classifying (one person can handle about 30 publications a day);
- The budget for books to be bought;

The number of persons consulting reference works and other publications, because that will determine the number of persons needed for reference work and reshelving;
The number of loan slips used, because that will determine:

- The number of loan slips to be bought;
- The number of persons needed for loan administration, including inter-library loans.

If these figures show a tendency to stabilize, counting can be stopped. If there is any noticeable increase or decrease in activities, it can be restarted.

People visiting a library always want to know how many books, journals, etc., it contains. Any inquiry about the library also asks this question. So, once in a while, a rough estimate could be made, even though this says nothing whatsoever about the value of the collection.

Often, such statistics are used to make comparisons between libraries. In that case, it should be made clear exactly what is counted. In the number of journals, for instance, does this include all kinds of newsletters received free of charge? Or, if only one copy of a journal was ever received, is it catalogued and counted among the journals? Are series counted with the journals or separately?

4.11 Budget

A library should have its own budget, to be spent under the supervision of the librarian in cooperation with the library board. The funds required depend heavily on circumstances, but some general rules can be given. So, the budget should cover funds for:

Approximately one book or other publication for each staff member each year: U.S. $75-$100 per book;
One or two core journals, 15 to 20 other journals, and one abstract journal per discipline: U.S. $150-$200 per journal, U.S. $300-$500 per abstract journal;
Catalogue cards equal to the number of publications, multiplied by 5 or 6. Stencils and ink if a stencil machine is used;
Loan slips;
New shelves, furniture, and office materials;
Bindings or boxes for journals and series;
Online retrieval: U.S. $75-$100 per search;
Inter-library loan requests.

4.12 Ground Plans for a Library

The space allotted to a library and the way it is furnished will, of course, depend entirely on the local situation and the available resources. Nevertheless, Appendix 16 gives two examples of possible ground plans for a library.

5 Agricultural Information Sources

5.1 Online Literature Retrieval

To gain access to an online database, a user sits in front of a computer terminal and dials a local telephone number. Through the telephone line and a modem, his terminal is linked to a computer elsewhere. Using a password, he gains access to this 'host' computer and requests access to the database he is interested in. The interaction language of the host system, which has been designed for use by persons with no background in computer programming, permits the user to retrieve and display the information he wants.

Various types of databases are available online. Interesting for agriculture are AGRICOLA, AGRIS, BIOSIS PREVIEWS, CAB ABSTRACTS, PASCAL AGROLINE, and TROPAG. (For more details, see Appendix 14.)

Databases are developed by 'suppliers', referred to as 'producers'. To produce a printed version of their databases, these documentation and information services use automated systems for photo typesetting and thus generate a magnetic tape that can be used for computerized processing, particularly in storage and retrieval systems.

Most producers sell their databases to other organizations, known as 'online services' or 'host computer services'. These provide the computer, the interaction language, and the telecommunication support that enables users to gain access to the databases. Price policies for access to, and the use of, the online database services are extremely varied. Rates range from U.S. $15 to $300 an hour. There are the following components:

- Start-up fee, which often includes account setup, initial training, and materials costs;
- Telecommunication costs;
- Costs for database services. These costs are usually based on an hourly connect-time rate; they may or may not include the royalty;
- Costs for online or offline printing or downloading. (For an explanation of these terms, see below.) For bibliographic databases, there is a charge for offline printing; it is usually based on the number of citations.

If the same database is available from more than one source, one can compare prices. Prices, however, do not tell the whole story of costs. There are differences in system capabilities. Online services also offer:

- Selective Dissemination of Information SDI service. Each month, a certain profile, consisting of keywords that clearly describe a subject a customer is interested in, is run against the update of the database;
- Online or offline printing or downloading. After an online search is finished, the titles found, including their descriptions, can be printed online, offline, or downloaded. With offline printing, the titles are printed by the host computer and sent by mail to the user. With online printing, the titles are printed on the library's own printer. With download, which is often more expensive, the data are stored in magnetic form (on a floppy or hard disc) and can be re-used by the customer for his own purposes and at his own convenience.

So, selecting an online service is not easy and depends greatly upon the local circumstances. Addresses of online services can be found in *Online Databases in the Medical and Life Sciences*, a selected sub-set from the *Directory of Online Databases* issued in 1987 by Cuadra/Elsevier.

The following section gives more information about three online services: DIALOG, ESA/IRS, and DIMDI.

5.2 Hosts, Online Services, Vendors

The online service DIALOG gives access to 100 million items organized in 300 databases. Those that concern agriculture are listed in Table 2. For information on present prices, how to gain access, or about other services offered, write to: DIALOG, Information Services, Customer Administration Dept. A, 3460 Hill View Avenue, Palo Alto, California CA 94304, U.S.A.

Table 2 Agricultural databases in DIALOG
(Prices are September 1990 prices in U.S.$)

File No.	Name	Online connect time rate per: minute	hour	Print rate off-line	on-line
10	AGRICOLA 1979-	0.75	45	0.30	0.23
110	AGRICOLA 1970-1978	0.75	45	0.30	0.23
203	AGRIS	1.00	60	0.35	0.20
5	BIOSIS PREVIEWS 1969-	1.40	84	0.59	0.53
55	BIOSIS PREVIEWS 1981-	1.40	84	0.59	0.53
50	CAB ABSTRACT 1984-	1.20	72	0.50	0.50
53	CAB ABSTRACT 1972-1983	1.20	72	0.50	0.50
144	PASCAL	1.00	60	0.50	0.50

The European Space Agency Information Retrieval Service (ESA IRS) gives access to 80 databases containing 30 million items. The data can be searched with the ESA QUEST retrieval language. The databases that concern agriculture are listed in Table 3. The prices are 1989 prices and serve merely as an indication. For more information on a DIAL-UP access contract and other services offered, contact ESRIN, Via Galileo Galilei, 00044 Frascati, Italy.

Table 3 Agricultural databases in ESA IRS
(Prices are 1989 prices in U.S.$)

File No.	Name	Online connect time rate per hour	Print rate off-line	on-line
	AGRIS 1975	21.	0.32	
7	BIOSIS	12.	0.90	1.10
132	CAB ABSTRACT	12.	1.10	1.10
14	PASCAL	12.	0.78	0.94

The Deutsches Institut fur Medizische Documentation und Information DIMDI offers access to 80 databases, four of which concern agriculture. These are listed in Table 4. The data can be searched with the GRIPS retrieval language. For more information, write to DIMDI, Weisshausstrasse 27, P.O. Box 420580, 5000 Cologne, Germany.

Table 4 Agricultural databases in DIMDI
(Prices in U.S.$)

Name	Online connect time rate per hour	Print rate off-line	on-line
AGRICOLA	6.	0.05	0.05
AGRIS	free	free	free
BIOSIS	43.	0.29	0.28
CAB	20.	0.33	0.33

Other online services offering agricultural databases are listed in Table 5.

Table 5 Other online services offering agricultural databases

Online service		BRS	ORBIT	TELESYS
Databases				
AGRICOLA	1970-	x		
BIOSIS	1970-	x		
CAB ABS.	1980-	x		
PASCAL	1973-			x
TROPAG	1975-		x	

BRS BRS Information Technologies, 1200 Route 7, Latham, N.Y. 12110, U.S.A.
ORBIT Information Technology, 8000 West Park Drive, Suite 400, MacLean, Virginia VA 22102, U.S.A.
TELESYS Tele Systeme Questel, 83-85 Boulevard Vincent Auriol, 75013 Paris, France.

5.3 Compact Discs

In Third World countries, it is often difficult to acquire information about agriculture. In Africa, for example, there are only a few documentation centres that are even partially computerized. In Europe and North America, however, it is now common for farmers to be made aware of the latest developments in agricultural science via computerized information systems.

A new technology seems to be promising. It is CD-ROM (Compact Disc – Read Only Memory). Its major attraction is its enormous storage capacity: each CD can store 180,000 bibliographic references, plus abstracts. The entire contents of a 20-volume encyclopedia can be recorded on one simple CD-ROM.

In Third World countries, online retrieval with the databases of information services or vendors is not easy. Power cuts are all too frequent, and poorly developed tele-

communication systems hamper literature searches. But CD-ROM technology is not dependent on tele-communications. At this moment, the following are available on compact disc:

- The Grolier Electronic Encyclopedia, which contains the text of the 20-volume Academic American Encyclopedia. Activenture's retrieval software allows quick searching on every word and on phrases. The encyclopedia costs U.S. $199. A fully configured system (CD-ROM drive, software, interface board) costs U.S. $1,495. An annual update is U.S. $25. Produced by Grolier Electronic Publishing;
- AGRICOLA database, which is produced by Silver Platter Information Inc., 37 Walnut Street, Wellesby Hills, Massachusetts MA 02181, U.S.A. Current disc U.S. $820. Archival disc set (3 discs) U.S. $820;
- Royal Institute for the Tropics, Mauritskade 63, 1092 AD Amsterdam, The Netherlands, produces *Abstracts on Tropical Agriculture* on CD-ROM. Included are not only the bibliographic references, but also the full text of each publication. Produced by Silver Platter for U.S. $840 annually;
- CAB International, also produced by Silver Platter, costs: Volume 1 (1984-1986) U.S. $2,100; Volume 2 (1987-1989) U.S. $4,200; Current Disc U.S. $2,100 annually;
- AGRIS, also produced by Silver Platter, costs: Archival Disc Set U.S. $825; Current Disc U.S. $825 year.

In the near future, The International Rice Research Institute IRRI will produce a CD-ROM containing all the IRRI publications in full text.

More information on which CD-ROMs are available can be found in *The CD-ROM Directory*, TFPL Publishing, 22 Peters Lane, London EC1 M 6DS, England.

5.4 Information on Institutions

Appendix 5 contains a list of national and international (research) institutions. These institutions will supply information on request. Besides these, there are many others. They can be found under the heading of 'Directories' in Appendix 8.

CTA, since its foundation, has regularly published information about institutions in its newsletter *Spore*, under the heading of 'Information Sources'. Up to now, the following institutions have been treated:

- AGRYMET: Agro-hydro-meteorology;
- CABI: Commonwealth Agricultural Bureaux International;
- CIDARC: International Centre for Documentation on Hot Climate Agriculture;
- CTA: Centre Technique de Cooperation Agricole Rural;
- ELCI: Environmental Liason Centre International;
- IBRAM: International Board for Soils Research and Management;
- IFAD: International Fund for Agricultural Development;
- IFAP: International Federation of Agricultural Producers;
- IFIS: International Food Information Service;
- IFS: International Foundation for Science;
- ILCA: International Livestock Centre for Africa;
- INRES UNDP: Information for the Third World;
- IRETA: Institute for Research, Extension, and Training in Agriculture;

- ISNAR: International Service for National Agricultural Research;
- ITDG: Intermediate Technology Development Group;
- LCRC: Liverpool Cotton Research Cooperation;
- ODI: Overseas Development Institute;
- RESADOC: Sahel Network on Information and Scientific and Technical Documentation;
- SATIS: Socially Appropriate Technology International Information Services;
- WARDA ADRAO: West Africa Rice Development Association Association pour le Developpement de la Rize Culture en Afrique de Quest.

6 Library Instruction and Public Relations

6.1 Library Instruction

A librarian will be called upon to give two types of instruction:
- An introductory talk to persons who only visit the library for a brief period and want to know something about it;
- Instruction sessions for staff members and students to teach them how to use the library in the best possible way.

6.1.1 Introductory Talk

The introductory talk for individuals or for groups will cover the following subjects:
- The various kinds of publications collected by the library through purchases, exchanges, or gifts;
- The catalogues available in the library and how they are used to retrieve publications;
- Showing some of the books, abstract journals, and journals to the the visitors;
- Demonstration, if facilities are available, of online retrieval or retrieval by compact disc.

A leaflet could be prepared and handed out to such visitors. Appendix 15 presents an example of such a leaflet.

6.1.2 Instruction Sessions

Many people do not know how to use a library properly. They are not acquainted with all the facilities a library has to offer. Therefore, at regular intervals, instruction sessions should be held for staff members and students. During these sessions, the following subjects could be treated:
- How the various publications are acquired, what collections are available in the library, and what catalogues give access to these collections;
- How to find a publication if the name of the author or the title is known;
- How to find some information on a certain subject or on a region or country by using the classified catalogue or the geographical catalogue;
- How to find everything on a subject, using abstract journals, online information retrieval, or the CD-ROM technology;
- A demonstration of some of the various relevant publications;
- An explanation of the loan administration and other library regulations.

To ensure that those attending these sessions understand everything they have been taught, some practical work should be included.

The text of the instructions could be printed in a small booklet and distributed among staff members. The booklet could also be handed to any new staff members when they take up their duties.

6.2 Development Plan

The management of the mother organization, when making decisions on budgets, personnel, space, etc., to be allotted to the library, will want to be informed about the numbers of books, journals, series, pamphlets, and reference works that the library will contain. It will also want to know about the personnel, funds, and equipment required to run the library, and about the services the library will offer to its users. It will further want to be informed on how the library is expected to develop in the future.

All this information can be presented in a development plan. This will require an analysis of the needs of the mother organization and of its future developments. Developments in the outside world (e.g. in computerization) should also be analyzed. In this way, the objectives of the library will emerge. When these objectives are set out in a development plan, they can be converted into terms of funds, personnel, and space the library will require to achieve its objectives.

6.3 A Library's Right of Existence

Even if a library is well-organized and offers the best possible services in the quickest possible way, people keep asking 'Why have a library?' It is a question that often crops up, especially when money is tight. Answering this question is not easy, but the following arguments might help:

- Researchers who produce publications want others to know of their contents. Useful knowledge should be passed on to its potential users, otherwise it is a waste of time producing it. A library offers these potential users access to this knowledge;
- The results of research are often used by other researchers as a springboard to more knowledge. Research is expensive, so it ought not be repeated unnecessarily. The already existing wheel need not be invented again and again;
- Beneficial contacts (or contracts) between the mother organization and persons from outside often begin with a visit to the library;
- Depending, of course, on the purpose of the mother organization, it is often the task of a staff member not only to teach or to conduct research, but also to advise others on subjects within his discipline. He therefore needs to be informed about the developments taking place in that discipline.

6.4 Public Relations

The best of public relations is a well-organized library, able to comply, quickly and efficiently, with requests from its users.

The services it can provide, each of which has been discussed in this book, are:

- Current Awareness Bulletin/Accession List;
- Pages of Contents Bulletin;
- A leaflet about the library;
- Small booklet on how to use the library;
- Personal awareness of news;
- Question-and-Answer Service.

Of equal importance to these explicit services are a well-composed co!" ction, accessible through different catalogues, an attractive display of newly-arrived items, an efficient loan service, including inter-library loans, and, last but not least, friendly and helpful library personnel.

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Appendix 1
Starting a Small Library

Anyone starting a new library would be wise to seek collaboration with an existing library, where trained personnel can be asked for advice.

When a small library is to be started, several questions have to be answered:
- How many books will the library contain?
- Will these be novels or study books?
- How many people will use the library?
- Will there be a (full-time) (professional) attendant available?
- During what times will this person be available?
- What services will be offered to the library users?

The answers will dictate the way the library will be organized.

The various processes to be followed in a library are set out below. Whether these all have to be applied will depend on the kind of library and the intensity of its use.

Order Catalogue

When a book is ordered or requested as a gift, particulars like its author, title, and where it has been ordered or requested are written on a library card, which is then placed in an Order Catalogue. When the book arrives in the library, the card is removed. This prevents duplication.

Cataloguing

Once the book has arrived in the library, it is catalogued on a library card. An example of the information to be entered on the card (the 'book description') is shown in Figure 24. At least one card should be prepared for each book. If there is no author, the name of the organization that sponsored or published the book is used.

G. Naber 40.101

Drainage: An Annotated Guide to Books and Journals.

Wageningen: ILRI, 1984. 47 pp. (Bibliography. ILRI: No. 18)

UDC

Figure 24 Example of a catalogue card

Book descriptions can also be stored in a computer. This allows the books to be retrieved in various ways: by author's name, title words, classification codes, etc. A software package that could be used is DBase III Plus. Another is Cardbox Plus, a database management package designed specially for libraries. It is issued by Business Simulation Ltd., Scriventon House, Speldhurst, Kent TN3 0TU, England. Telex 95513.

Catalogues

In a small collection of, say, up to 1,000 books (which equals about five or six bookcases, each with five or six shelves), catalogues will generally not be very useful, especially if the books are arranged in broad subject groups and there are only a few potential users. If the library is larger, however, or more intensively used, catalogues can be very convenient.

The possible catalogues that could be created are the following:

- An Author Catalogue, which can answer questions like: 'Is the book by author 'W' in the library collection?
- A Title Catalogue, which can answer questions like: 'Is the document with title 'X' available in the library?
- A Classified Catalogue, which can answer: 'Is there any information on subject 'Y'?;
- A Geographical Catalogue, which can answer: 'Is any information available on country 'Z'?'.

Many catalogues can answer many potential questions, but creating all these catalogues means a lot of work. One has to prepare library cards for each catalogue. These cards are easy to produce with the help of a Minigraph (a small stencil machine). The Minigraph 120 is manufactured by Weber, 711 West Algonquin Road, Arlington Heights, Illinois IL 60005, U.S.A. The price of a new one is about U.S. $2,000. The Minigraph requires special stencils and library cards, which are rather expensive.

A Classification System? Yes or No?

For a small library, there is not much point in classifying the books. If they are to be classified, however, one would be wise to use an existing classification system rather than a self-invented one. Inventing one will cost a lot of time and trouble and later it may prove inadequate to cope with new scientific developments.

The Federation of International Documentation FID, P.O. Box 95312, 2509 CH The Hague, The Netherlands, issues the Universal Decimal Classification System UDC, a well-known and flexible classification system. But, classification requires a lot of intellectual effort and can only be done by a person well-acquainted with the subject.

A satisfactory alternative for a small library is to arrange the books on the shelves in broad subject groups. A user can then easily see what kinds of publications are available.

Call Numbers and Shelving Order

Each book is given a 'call number' written on a small sticker placed on the spine of the book. This call number determines the shelving order. The kind of call numbers used depends on the kind of books involved.

For novels, the call number consists of the first three letters of the author's name. If there is no author, the first three letters of the name of the sponsoring or publishing organization are used. If this is not known, the first three letters of the title are used, but unimportant words like 'a' or 'the' are disregarded. The books are arranged in alphabetical order of these first three letters.

For study books, the books are arranged in broad subject groups. Each subject is given a number (1, 2, etc.). Within the subject group, the books are arranged in the order in which they are acquired by the library. The call number will look like 1/1, 1/2, etc. Too many broad subject groups will mean only a few books in each group, with the groups difficult to distinguish.

The above-mentioned UDC can be helpful in preparing a suitable list of broad subject groups.

Borrowing

Users could be allowed to borrow one book at a time, or possibly more. The loan period could be set at a fortnight.

Users like an open access library because they can browse in it. Although thefts increase in open access libraries, they have certain advantages. Catalogues are not always required in them, the user simply choosing the books he wants, which saves a lot of time for the library personnel.

The opening frequency of the library will depend on the kind of books involved, the services to be offered to the users, and the availability of personnel. It could be, say, one hour a week, one hour three times a week, or one hour a day.

Loan Administration

For a library used by, say, up to 200 people, a loan card could be prepared for each user. The card could contain the name, address, and photo of the user on one side and, on the other, space to write the call numbers of the books on loan and the date they have to be returned. The cards are then kept in the library in alphabetical order of the user's name. (See Figure 25)

If the library has more than 200 users, a more efficient method is to have sets of pre-prepared lending forms. If sets of two forms are used, one form can be arranged in alphabetical order of the user's name; the other in the order of the call number. In this way, if a book is not on the shelf, it can be seen who has borrowed it. If three forms are used, the third form can be arranged by the date the book should be returned. This makes it easy to see which borrower is exceeding the loan period. All these arrangements, of course, cost time and effort.

G. Naber Rua C 140 Maputo	Photo

Call No.	Date	Call No.	Date

Figure 25 Example of a loan card

It is debatable whether fines should be imposed for overdue books. I know of no fine that will ensure that books are returned on time. A small fine might help, but the best way is to exercise a sharp control over the books. After the loan period has expired, a reminder should be given to the defaulter, preferably by phone or by a personal visit. People not returning books on time can be excluded from the library for a certain period, or forever.

Returned Books

Books returned to the library should be replaced on the shelves by the library personnel. Books are often 'lost' in a library because they are misplaced on the shelves. Users do not always understand the shelving order.

Returned books lying on the loan counter are often picked up and borrowed by other users. If so, they need not, of course, be re-arranged on the shelves. Newly borrowed books can be registered at the same time as the returned ones are deleted.

Some Measurements

One book is about 3 cm thick, which means 30 to 50 books in 1 m. With some 5 or 6 shelves in a bookcase, that means between 150 and 300 books in one bookcase.

One report is about 1 cm thick, which means 100 to 150 reports in 1 m, and about 600 to 750 in one bookcase.

Three Examples of Small Libraries and Their Possible Organization

Library of novels:
- One library card for each book;
- Cards arranged alphabetically by the first three letters of the authors' names;
- Shelving order also alphabetically by authors' names;
- Loan administration with loan cards;
- Opening frequency: once a week for one or two hours;
- Free-access library;
- Fine: one-thousandth of user's monthly income.

Library of study books:

- One library card for each book;
- Cards arranged in order of book numbers;
- Shelving order: books are arranged in broad subject groups;
- Loan administration with loan cards;
- Opening frequency: open as much as possible, under the supervision of a secretary or receptionist;
- Free-access library;
- No fines, but each fortnight contact with borrowers who did not return books on time.

Library of reprints:

- No cards;
- Reprints arranged under broad subject groups;
- No catalogues, unless the library is used intensively;
- No loan administration;
- This type of library will probably be administered by a staff member, so it is open when he is available;
- Free-access library;
- Fines: None.

Appendix 2
Abbreviations

ACIAR	Australian Centre for International Agricultural Research
ADRAO	Association pour le Développement de Riziculture en Afrique de l'Ouest
ASA	American Society of Agronomy
ASAE	American Society of Agricultural Engineers
ASLIB	Association for Information Management (Formerly: Association of Special Libraries)
ASP	American Society for Photogrammetry and Remote Sensing
AUW	Agricultural University, Wageningen
AVRDC	Asian Vegetable Research and Development Centre
BLL	British Library Lending Division
CABI	Commonwealth Agricultural Bureaux International
CATIE	Centro Agronomica Tropical de Investigacion y Ensenanza
CEEMAT	Centre d'Etudes et d'Experimentation du Machinisme Agricole Tropical
CENAGRI	Centro Nacional do Informacão Documental Agricola
CGIAR	Consultative Group on International Agricultural Research
CIAT	Centro Internacional de Agricultura Tropical
CIDA	Canadian International Development Agency
CIDIA	Centro Interamericano de Documentación e Información Agricola
CILSS	Comité permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel
CIMMYT	Centro Internacional de Mejoramiento de Maiz y Trigo
CIP	Centro Internacional de la Papa
CIRAD	Centre de Cooperation Internationale en Recherche Agronomique pour le Developpement
CSSA	Crop Science Society of America
CTA	Technical Centre for Agricultural and Rural Cooperation
CTFT	Centre Technique Forestier Tropical
DSA	Département Systèmes Agraires
EC	European Community
ELBS	English Language Book Society
EMBRAPA	Empresa Brasileira de Pesquisa Agropecuaria
FID	Federation International de Documentation/Federation of International Documentation
FSSP	Farming Systems Support Project
GERDAT	Groupement d'Etudes et de Recherches pour le Developpement de l'Agronomie Tropicale (Since 1984, CIRAD)
IAALD	International Association of Agricultural Information Specialists
IBPGR	International Board for Plant Genetic Resources
IBSRAM	International Board for Soil Research and Management
ICARDA	International Center for Agricultural Research in Dry Areas

ICID	International Commission on Irrigation and Drainage
ICIPE	International Center of Insect Physiology and Ecology
ICRAF	International Council for Research in Agroforestry
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IDRC	International Development Research Centre
IFDC	International Fertilizer Development Center
IFLA	International Federation of Library Associations
IIMI	International Irrigation Management Institute
IITA	International Institute of Tropical Agriculture
ILCA	International Livestock Center for Africa
ILEIA	Information Centre for Low External Input Agriculture
ILRI	International Institute for Land Reclamation and Improvement
INRA	Institut National de la Recherche Agronomique
IRAT	Institut de Recherches Agronomiques Tropicales et de Cultures Vivrières
IRCC	Institut de Recherches du Café, du Cacao et autre Plantes
IRCT	Institut de Recherches du Coton et des Textiles exotiques
IRFA	Institut de Recherches sur les Fruits et Légumes
IRHO	Institut de Recherches pour les Huiles et Oléagineux
IRRI	International Rice Research Institute
ISNAR	International Service for National Agricultural Research
ISSS	International Society of Soil Science
ITC	International Institute for Aerial Survey and Earth Sciences
NAL	National Agricultural Library
NTIS	National Technical Information Service
ODI	Overseas Development Institute
ODNRI	Overseas Development National Resources Institute
ORSTOM	Office de la Recherche Scientifique et Technique Outre-Mer
SACCAR	Southern African Centre for Cooperation in Agricultural Research
SCSA	Soil Conservation Society of America
SSSA	Soil Science Society of America
UDC	Universal Decimal Classification
UNDP	United Nations Development Program
WARDA	West Africa Rice Development Association

Appendix 3
List of Agricultural Journals Organized under UDC

UDC 0/9	GENERAL
UDC 57	BIOLOGY/BOTANY
UDC 551.5	AGRO-METEOROLOGY
UDC 63	AGRICULTURE
UDC 634.1 635.8	FRUITS HORTICULTURE
UDC 631.3	AGRICULTURAL ENGINEERING
UDC 631.4 631.8	SOIL SCIENCE SOIL FERTILITY
UDC 631.52	PLANT BREEDING
UDC 631.6	RURAL ENGINEERING
UDC 632	PLANT DISEASES
UDC 632.7	ENTOMOLGY
UDC 632.9	PLANT PROTECTION AND PEST CONTROL
UDC 633.2 3	GRASSLAND RANGELAND
UDC 681.3	COMPUTERS

UDC 0/9 GENERAL

The Courier: African-Caribbean-Pacific-European Community
General Secretariat of the ACP Group of States, Avenue Georges Henri 451, 1200 Brussels, Belgium.

The IDRC Reports
International Development Research Center, 250 Albert Street, P.O. Box 8500, Ottawa, Canada K1G 3H9.

Nature and Resources
UNESCO, 7 Place de Fontenoy, 75700 Paris, France.

New Scientist
New Scientist Subscriptions, Freepost 1061, Oakfield House, Perrymount Road, Haywards Heath, West Sussex RH16 3ZA, England.

UDC 57 BIOLOGY/BOTANY

American Journal of Botany
Botanical Society of America, 1735 Neil Avenue, Columbus, Ohio OH 43210, U.S.A.
Covers all branches of plant science.

Annals of Applied Biology
The Association of Applied Biologists, Institute of Horticultural Research, Wellesbourne, Warwick CV35 9EF, England.

Annals of Botany

Academic Press, 24-28 Oval Road, London NW1 7DX, England.

The journal gives broad coverage of all aspects of botany. It emphasizes current research on growth, mathematical models of physiological processes, and plant structure.

Australian Journal of Plant Physiology

CSIRO Publications, P.O. Box 89, East Melbourne, Victoria 3002, Australia

The Botanical Review

New York Botanical Gardens, Bronx, New York, NY 10458-5126, U.S.A.

Presents syntheses of the state of knowledge and understanding of individual segments of botany.

Economic Botany

Society for Economic Botany, New York Botanical Gardens, Bronx, New York, NY 10458-5126, U.S.A.

Deals with past, present, and future uses of plants by people.

Journal of Experimental Botany

Subscriptions Department, Oxford University Press, Walton Street, Oxford OX2 6DP, England.

Publishes articles on plant physiology, biochemistry, biophysics, and related topics.

Journal of Plant Physiology (formerly *Zeitschrift für Pflanzenphysiologie*)

Gustav Fisher Verlag, Wollgrasweg 49, D-7000, Stuttgart 70, Germany.

Deals with basic aspects of plant physiology. Fundamental.

Physiologia Plantarum

Munksgaard International Publishers, 35 Norre Sogade, DK-1370 Copenhagen, Denmark.

Official publication of the Scandinavian Society for Plant Physiology and of the Federation of European Societies of Plant Physiology. Publishes papers on all aspects of plant physiology. The scope ranges from biochemistry and biophysics through classical plant physiology to ecology. Fundamental.

Plant and Cell Physiology

Japanese Society of Plant Physiologists, Shimotachiuri Ogawa Higashi, Kamikyo-ku, Kyoto 602, Japan.

Covers broad areas of the plant sciences, including physiology, biochemistry, biophysics, chemistry, molecular biology, cell biology, and gene engineering of plants and micro-organisms. Fundamental.

Plant Cell Reports

Springer International, Journal Production Department, Postfach 10 52 80, D-6900 Heidelberg, Germany.

Deals with all aspects of plant cell and plant cell culture research: physiology, cytology, biochemistry, molecular biology, genetics, phytopathology, and morphogenesis, including plant regeneration from protoplasts, cells, tissues, and organs.

Plant Cell, Tissue, and Organ Culture

Kluwer Academic Publishers, P.O. Box 17, 3300 AH Dordrecht, The Netherlands.

An international journal on the cell biology of higher plants. Publishes results of fundamental studies on the behaviour of plant cells, tissues, and organs in vitro.

Plant Physiology

American Society of Plant Physiologists, 15501 Monona Drive, Rockville, Maryland MD 20855-2719, U.S.A.

Is concerned with research on the physiology, molecular biology, environmental biology, biochemistry, cell biology, and biophysics of plants.

Plant Science: An International Journal of Experimental Plant Biology

Elsevier Scientific Publishers Ireland, P.O. Box 85, Limerick, Ireland.

Papers describe experimental work with multicellular plants and plant-like microorganisms (protists, including algae and fungi and blue-green algae). Fundamental.

UDC 551.5 AGRO-METEOROLOGY

Agricultural and Forest Meteorology

Elsevier Journal Department, P.O. Box 211, 1000 AE Amsterdam, The Netherlands.

Typical topics cover radiation transfer in plant canopies, evapotranspiration, energy transfer, air movement in and above plant canopies.

UDC 63 AGRICULTURE

Advances in Agronomy

Academic Press, 1250 Sixth Avenue, San Diego, California CA 92101, U.S.A.

African Farmer: The Key to Africa's Future

The Hunger Project, Global Officer, 1 Madison Avenue, New York, NY 10010, U.S.A.

Afrique Agriculture

Haussmann Regie Publicité, 190 Boulevard Haussman, 75008 Paris, France.

Agribusiness Worldwide

Sosland Publishing Co., 9000 West 67th Street, Merriam, Kansas KS 66202, U.S.A.

Agricultural Research

The Editor, Information Staff, Room 318, Building 005, Agricultural Research Center-West, Beltsville, Maryland MD 20705, U.S.A.

This journal is published ten times a year by the Agricultural Research Service, U.S. Department of Agriculture.

Agroforestry Today

International Council for Research in Agroforestry, P.O. Box 30677, Nairobi, Kenya.

Agronomie: Sciences des Productions Vegetales et de l'Environment

Service des Publications de l'INRA, Route de Saint Cyr, 78000 Versailles, France.

L'Agronomie Tropicale

Institut de Recherches Agronomiques Tropicales, Département Cultures Vivrières du Centre de Cooperation Internationale en Recherche Agronomique pour le Développement, 45 bis Avenue de la Belle Gabrielle, 94736 Nogent sur Marne, CEDEX, France.

Agronomy Journal

The American Society of Agronomy, 677 South Segoe Road, Madison, Wisconsin WI 53711, U.S.A.

Contains articles on soil-plant relations; crop science; soil science; biometry; crop, soil, pasture, and range management; crop, forage, and pasture production and utilization; turfgrass; agroclimatical and agronomic modeling.

American Journal of Agricultural Economics

AAEA, 80 Meady Hall, Iowa State University, Ames, Iowa 50011-1070, U.S.A.

Australian Journal of Agricultural Research

CSIRO Publications, P.O. Box 89, East Melbourne, Victoria 3002, Australia.

Contains articles promoting the understanding of some parts of the physical, chemical, and/or biological aspects of an agricultural system of relevance to Australian conditions.

Australian Journal of Experimental Agriculture

Collector of Moneys, CSIRO, 314 Albert Street, East Melbourne, Victoria 3002, Australia.

Publishes the results of applied research into the soil, plant, and animal sciences of relevance to Australian agriculture.

Bragantia: Revista Cientifica do Instituto Agronómico

Instituto Agronómico, C.P. 28, 13001 Campinas (SP), Brasil.

Crop Science

Crop Science Society of America, 677 South Segoe Road, Madison, Wisconsin WI 53711, U.S.A.

Cultivos Tropicales: Revista Trimestral de Investigaciones Agricolas de la Educacion Superior de la Republica de Cuba

Instituto Nacional de Ciencias Agricola, Ediciones Cubanas, Apartado No. 60, Ciudad de la Habana, Cuba.

East African Agricultural and Forestry Journal

Kenya Agricultural Research Institute, P.O. Box 57811, Nairobi, Kenya.

Experimental Agriculture

Cambridge University Press, The Pit Building, Trumpington Street, Cambridge CB2 1RP, England.

An international journal on research into crops and farming systems, particularly of the warmer regions of the earth. This journal is the successor to *The Empire Journal of Experimental Agriculture*.

Farmer's Weekly

Reed Business, Oakfield House, Perrymount Road, Haywards Heath, Sussex RH16 3DH, England.

Farming Systems Newsletter

S. Waddington, CIMMYT, P.O. Box MP 154, Mount Pleasant, Harare, Zimbabwe.

Contains news, comments, letters, research results, and opportunities concerning on-farm research in Southern and Eastern Africa.

FSSP Newsletter

Farming Systems Support Project, Institute of Food and Agricultural Sciences, University of Florida, 3028 McCarthy Hall, Gainesville, Florida FL 32611, U.S.A.

Fertilizer Research

Nijhoff Publishers, Spuiboulevard 50, 3311 GR Dordrecht, The Netherlands.

An international journal on fertilizer use and technology.

Field Crop Research

Elsevier Science Publisher, P.O. Box 211, 1000 AE Amsterdam, The Netherlands.

Covers: crop agronomy, improvement, physiology, ecology, and protection; soil and water management; farming systems. Crops dealt with are: cereals, non-cereal carbohydrate crops, pulses, sugar crops, oil crops, fibre crops, beverage crops, rubber, tobacco; forages. Outside the scope of the journal are crop storage, transport and utilization, social or economic aspects of crops.

The Indian Journal of Agricultural Sciences

Indian Council of Agricultural Research, Publication and Information Department, Krishi Anusandhan Bhavan, Pusa, New Delhi 110012, India.

Indian Journal of Agronomy

Indian Society of Agronomy, Division of Agronomy, Indian Agricultural Research Institute, New Delhi 110012, India.

Informatore Agrario

Largo C. Caldera, 11 Casella Postale 520, 37100 Verona, Italia.

International Agricultural Development

19 Woodford Close, Caversham, Reading, Berks RG4 7HN, England.

The journal serves as a forum for debate on agricultural issues in the developing world. It gives attention to increasing food output, improving distribution, and creating conditions under which hunger can be overcome.

International Journal of Tropical Agriculture

Vidya International Publishers, 8/16 New Campus, H.A.U., Hissar, 125004, Haryana, India.

A publication of the Haryana Agricultural University.

Inter Tropiques

34 bis Rue de Dunkerque, 75001 Paris, France.

A journal for those interested, directly or indirectly, in agriculture in countries in the southern part of the world.

The Journal of Agricultural Science

Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU, England.

The journal publishes papers from all over the world, covering the whole range of agriculture.

Journal of Production Agriculture

American Society of Agronomy, 677 South Segoe Road, Madison, Wisconsin WI 53711, U.S.A.

Emphasis is placed on papers that transfer production-oriented scientific and technoiogical information on agronomy in accord with other areas such as animal science, agricultural economics, range management, weed science, entomology, plant pathology, horticulture, and forestry.

Pesquisa Agropecuaria Brasileira

C.P. 040315, CEP 70312, Brasilia, DF, Brasil.

This journal publishes agricultural scientific matters such as grostology, economics, experimental statistics, plant pathology, crop science, soil science, animal science, rural sociology.

Queensland Journal of Agricultural and Animal Sciences

Queensland Department of Primary Industries, G.P.O. Box 46, Brisbane, Queensland 4001, Australia.

The journal records the results of biological, economic, and engineering research work relevant to Queensland's primary industries.

Revista Ceres

Universidade Federal de Vicosa, Vicosa, Minas Gerais, Brasil.

Revista Globo Rural

Editora Rio Grafica, C.P. 6 CEP 20001, Rio de Janeiro R.J. Brasil.

Rivista di Agricoltura Subtropicale e Tropicale

Organo dell'Istituto Agronomico per l'Oltremare di Firenze, Via A. Cocchi, 4, Firenze, Italia.

Span: Progress in Agriculture

Shell International Chemical Co., Shell Centre, London SE1 7PG, England.

Spore: Bi-Monthly Bulletin of the Technical Centre for Agricultural and Rural Cooperation

CTA, P.O. Box 380, 6700 AJ Wageningen, The Netherlands.

Transactions of the ASAE

American Society of Agricultural Engineering, 2950 Niles Road, Saint Joseph, Michigan MI 49085-9659, U.S.A.

Contains sections on power and machinery, soil and water, structures and environment, food and process engineering, electrical and electronic systems.

Tropicultura

C. Winterbeek, Marsveldplein 5 B 57, 1050 Brussel, Belgium.

The journal is concerned with rural problems in the developing countries and is published by the Belgian Administration for Development Cooperation.

Tropical Agriculture

Westbury Subscription Services, P.O. Box 101, Sevenoaks, Kent TN15 8PL, England.

The Journal of the Faculty of Agriculture, Imperial College of Tropical Agriculture, Universities of the West Indies.

Turrialba: Revista Interamericana de Ciencias Agricolas

Inter-American Institute for Cooperation on Agriculture, P.O. Box 55, 2200 Coronado, San Jose, Costa Rica.

Publishes papers on agricultural science in Spanish, English, Portuguese, and French.

UDC 634.1/635.8 FRUITS/HORTICULTURE

Fruits: Fruits d'outre-mer

Revue mensuelle de l'Institut de Recherches sur les Fruits et Agrumes, 6 Rue du Général Clergerie, 75116 Paris, France.

Citrus and Subtropical Fruit Journal

P.O. Box 4733, Parklands, 2121 South Africa.

This journal caters to the citrus and subtropical fruit industries.

Horticultura Brasileira

Revista da Sociedade de Olericultura do Brasil, Horticultura Brasileira, C.P. 07.0990, 70.359 Brasilia, DF Brasil.

Hort Science

American Society for Horticultural Science, 701 North Saint Asaph Street, Alexandria, Virginia VA 22314-1998, U.S.A.

Indian Journal of Horticulture

Horticulture Society of India, Krishi Bhawan, New Dehli, 110001, India.

Journal of the American Society for Horticultural Science

701 North Saint Asaph Street, Alexandria, Virginia VA 22314-1998, U.S.A.

The Journal of Horticultural Science

Headley Brothers Ltd., The Invicta Press, Ashford, Kent, England.

Publishes articles on fruit and perennial crops, vegetables, and ornamentals, from both temperate and tropical countries.

UDC 631.3 AGRICULTURAL ENGINEERING

Agricultural Engineering: Technology for Food and Agriculture

American Society of Agricultural Engineers, 2950 Niles Road, Saint Joseph, Michigan MI 49085-9659, U.S.A.

AMJ: Agricultural Machinery Journal for the Agricultural and Garden Machinery Industries

Carew House, Wallington, Surrey SM6 0DX, England.

Includes the journal called *Power Farming*, the only machinery journal for farmers.

Machinisme Agricole Tropical

Centre d'Etudes et d'Experimentation du Machinisme Agricole Tropical, Parc de Tournoie, 92160 Antony, France.

UDC 631.4/631.8 SOIL SCIENCE/SOIL FERTILITY

African Fertilizer Review

Mr M. Connolly, IFDC Africa, B.P. 4483, Lome, Togo.

The journal is of the non-refereed type. It covers fertilizer research, development, and technology transfer. It is edited and produced by the International Fertilizer Development Center and serves, in particular, the needs in Sub-Saharan Africa.

Australian Journal of Soil Science

314 Albert Street, East Melbourne, Victoria 3002, Australia.

Bulletin of the International Society of Soil Science

C/o International Soil Reference and Information Centre, 9 Duivendaal, P.O. Box 353, 6700 AJ Wageningen, The Netherlands.

Journal of the Indian Society of Soil Science

Indian Society of Soil Science, Indian Agricultural Research Institute, New Dehli 110012, India.

Journal of Plant Nutrition

Marcel Dekker, 270 Madison Avenue, New York, NY 10016, U.S.A.

The journal is concerned with plant nutrition, including the influence of the essential elements as well as those that are considered non-essential.

The Journal of Soil Science

Blackwell Scientific Publications, 23 Ainslie Place, Edinburgh EM3 6AJ, United Kingdom

South African Journal of Plant and Soil

Bureau for Scientific Publications, P.O. Box 1758, Pretoria 0001, Republic of South Africa.

Contains articles on soil science and applied plant science.

Plant and Soil

Kluwer Academic Publishers, P.O. Box 17, 3300 AA Dordrecht, The Netherlands.

An international journal on plant-soil relations. Deals with fundamental and applied aspects of plant nutrition, soil fertility, plant-microbe associations, soil microbiology, soil-borne plant diseases, soil and plant ecology, agrochemistry and agrophysics.

Soil Science

Williams and Wilkins, 428 East Preston Street, Baltimore, Maryland MD 21202, U.S.A.

Soil Science and Plant Nutrition

Japanese Society of Soil Science and Plant Nutrition, C/o Business Center for Academic Societies Japan, 4-16 Yayoi 2-chome, Bunkyo-ku, Tokyo, 113 Japan.

Soil Science Society of America Journal

Soil Science Society of America, 677 South Segoe Road, Madison, Wisconsin WI 53711, U.S.A.

UDC 631.52 PLANT BREEDING

Diversity

Diversity, 727 Street South East, Washington, DC 20003, U.S.A.

A news journal for the plant genetic resources community.

Euphitica: International Journal of Plant Breeding

Dr A.C. Zeven, Euphitica, P.O. Box 387, 6700 AJ Wageningen, The Netherlands.

Covers a wide range of subjects related to plant breeding: domestication, genetic resources, variation, cytology, floral biology, aneu- and eupolyploidy, wide crosses, introgression, substitution of cytoplasm, natural and artificially induced mutations, male sterility and hybrid cultivars, genetics, resistance to pathologens and pests, tolerance to abiotic stress, taxonomy of cultivated plants, selection methods and procedures, prebreeding, cultivar testing, and maintenance of cultivars and their production.

Plant Breeding: Zeitschrift für Pflanzenzuchtung

Paul Parey, Lindenstrasse 44-47, D 1000 Berlin 61, Germany.

The journal publishes articles on botanical breeding research and research on practical breeding of cultivated plants. Preference is given to work on leading crop plants and work containing new methodology.

Plant Genetic Resources Newsletter = Resources genetiques vegetales bulletin = Recursos geneticos vegetales noticiario

International Board for Plant Genetic Resources, Editor, IBPGR, C/o FAO, Via delle Terme di Caracalla 00100, Rome, Italy.

UDC 631.6 RURAL ENGINEERING

Drainage Contractor

Agri-Book Magazine, AIS Communication Ltd., 145 Thames Road West, P.O. Box 1060, Exeter, Ontario N0M 1S0, Canada.

ICID Bulletin

International Commission on Irrigation and Drainage, 48 Nyaya Marg, Chanakyapuri, New Delhi 110021, India.

ICID's objectives are the development and application of the art, science, and technique of engineering, agriculture, economics, ecology, and social science in managing water and land resources for irrigation, drainage, flood control, and river training.

Irrigation and Drainage Systems: An International Journal

Kluwer Academic Publishers, P.O. Box 332, 3300 AH Dordrecht, The Netherlands.

Irrigazione e Drenaggio

Edagricole, Via Emilia Levante 31, 40139 Bologna, Italia.

Journal of Irrigation and Drainage Engineering

American Society of Civil Engineers, 345 East 47th Street, New York NY 10017-2398, U.S.A.

The journal covers all phases of irrigation, drainage, and related water management subjects, such as watershed management, weather modification, water quality, groundwater, and surface water.

Journal of Soil and Water Conservation

Soil and Water Conservation Society, 7515 North East Ankeny Road, Ankeny, Iowa IA 50021-9764, U.S.A.

Emphasis is on the conservation of soil, water, air, and related natural resources, including all forms of beneficial plant and animal life.

Journal of Soil Conservation, New South Wales

Soil Conservation Service of NSW, Box R 201, Royal Exchange Post Office, Sydney NSW 2000, Australia.

Water and Irrigation Review

P.O. Box 21051, Tel Aviv 61210, Israel.

UDC 632 PLANT DISEASES

Indian Phytopathology

Indian Phytopathological Society, Indian Agricultural Research Institute, New Delhi 110012, India.

Journal of Phytopathology = Phytopathologische Zeitschrift

Paul Parey, Lindenstrasse 44-47, D-1000 Berlin 61, Germany.

The New Phytologist: An International Journal of the Plant Sciences

Cambridge University Press, The Pit Building, Trumpington Street, Cambridge CB2 1RP, England.

Publishes papers on all aspects of the plant sciences.

Phytopathology: An International Journal

American Phytopathological Society, 3340 Pilot Knob Road, Saint Paul, Minnesota MN 55121, U.S.A.

Plant Diseases: An International Journal of Applied Plant Pathology
American Phytopathological Society, 3340 Pilot Knob Road, Saint Paul, Minnesota MN 55121, U.S.A.

Plant Pathology
Blackwell Scientific Publishers, P.O. Box 88, Oxford OX2 0NE, England.
An international journal edited by the British Society for Plant Pathology. Publishes papers on all aspects of plant pathology.

UDC 632.7 ENTOMOLOGY

Annals of the Entomological Society of America
ESA Sales, 9301 Annapolis Road, Lanham, Maryland MD 20706, U.S.A.

Bulletin of Entomological Research
CABI Institute of Entomology, Wallingford, OXON OX10 8DE England.

Bulletin of the Entomological Society of America
ESA Sales, 9301 Annapolis Road, Lanham, Maryland MD 20706, U.S.A.

Indian Journal of Entomology
Entomological Society of India, Division of Entomology, Indian Agricultural Research Institute, New Delhi 110012 India.

Journal of Applied Entomology
Paul Parey, Lindenstrasse 44-47, D-1000 Berlin 61, Germany.

Journal of Economic Entomology
Entomological Society of America, P.O. Box 177, Hyattsville, Maryland MD 20781, U.S.A.

UDC 632.9 PLANT PROTECTION AND PEST CONTROL

Crop Protection
Butterworths, Westbury Subscription Services, P.O. Box 101, Sevenoaks, Kent TN15 8PL, England.
An international journal of pest, disease, and weed control.

FAO Plant Production Bulletin = Bulletin Phytosanitaire = Boletin Fitosanitario
FAO Distribution and Sales Section, Via delle Terme di Caracalla, 00100 Rome, Italy.

International Pest Control
238 A High Street, Uxbridge UB8 1UA, Middx., England.
Crop and stock protection, public health, wood preservation.

Journal of Pesticide Science
Pesticide Science Society of Japan, Japan Publications Trading, P.O. Box 5030, Tokyo, Int. Tokyo 100-31, Japan

Pesticide Science
Elsevier, Crown House, Linton Road, Barking Essex IG11 8JU, England.
An international journal of research and technology on crop protection and pest control. Published by Elsevier on behalf of the Society of the Chemical Industry.

Tropical Pest Management
Taylor and Francis, 4 John Street, London WC1N 2ET, England.
This journal was originally called *PANS* and was then published by the Overseas Development and Natural Resources Institute.
Weed Research
Blackwell Scientific Publications, Osney Mead, Oxford OX2 0EL, England.
Journal of the European Weed Research Society.
Weed Science
Weed Science Society of America, 309 West Clark Street, Champaign, Illinois IL 61820, U.S.A.

UDC 633.2/3 GRASSLAND/RANGELAND

The Australian Rangeland Journal
Department of Primary Industries, P.O. Box 102, Toowoomba, Queensland, Australia.
Grass and Forage Science
Blackwell Scientific Publications, 8 John Street, London WC1N 2ES, England.
The journal of the British Grassland Society.
ILCA Bulletin
International Livestock Center for Africa, P.O. Box 5689, Addis Ababa, Ethiopia.
Journal of Range Management
Society of Range Management, 1839 York Street, Denver, Colorado CO 80206, U.S.A.
Tropical Grassland
Tropical Grassland Society of Australia, Brisbane

UDC 681.3 COMPUTERS

Among many others:
Byte
1 Phoenix Mill Lane, Peterborough, New Hampshire NH 03458, U.S.A.
PC Resources: The Hands-on Guide for Business and Personal Productivity
P.O. Box 58742, Boulder, Colorado CO 80322-8742, U.S.A.

Appendix 4
List of Newsletters of International (Research) Organizations

ACIAR Newsletter: Australian Centre for International Agricultural Research
Agroforestry Today: International Council for Research in Agroforestry (until January 1989, *Newsletter ICRAF*)
At ICRISAT: International Crop Research Institute for the Semi-Arid Tropics
CAB International: Commonwealth Agricultural Bureaux
CGIAR Newsletter: Consultative Group on International Agricultural Research
CIAT International: Centro Internacional de Agricultura Tropical
CIMMYT Information Bulletin: Centro Internacional de Mejoramiento de Maiz y Trigo
CIP Circular: Centro Internacional de la Papa
'GATE': Questions, Answers, Information: German Agency for Technical Cooperation
IBSRAM Newsletter: International Board for Soil Research and Management
IDRC Reports: International Development Research Centre
IIMI Review: International Irrigation Management Institute
IITA Research Brief or *Echo de IITA*: International Institute of Tropical Agriculture
ILCA Newsletter: International Livestock Centre for Africa
ILEIA Newsletter: Information Centre for Low External Input Agriculture
IRRI Newsletter: International Rice Research Institute
ISNAR Newsletter: International Service for National Agricultural Research
KIT Newsletter: Royal Institute for the Tropics
Land and Water: Newsletter for Field Staff of the Land and Water Development Division: Food and Agriculture Organisation
Lettre du CIRAD: Centre for International Cooperation in Agricultural Research for Development
Lettre du GRET: Groupe de Recherche et d'Etranges Technologiques
Newsletter ODNRI: Overseas Development Natural Resources Institute
ODI-IMMI Management Newsletter: International Irrigation Management Institute
ODU Bulletin: Quarterly Bulletin of the Overseas Development Unit of Hydraulic Research
Resource: NRI Newsletter: Natural Resources Institute
SACCAR Newsletter: Southern African Centre for Cooperation in Agricultural Research
SPORE: CTA: Bi-Monthly Bulletin of the Technical Centre for Agricultural and Rural Cooperation
WARDA Technical Newsletter: West Africa Rice Development Association

Appendix 5
Addresses of National and International (Research) Organizations and Their Journals

AGRECOL
Okocentrum, CH 4438 Langenbruck, Switzerland

American Peanut Research and Education Society
P.O. Box 31025, Raleigh, North Carolina NC 27622, U.S.A.

American Phytopathological Society
3340 Pilot Knob Road, Saint Paul, Minnesota MN 55121, U.S.A.
- *Phytopathology: An Official Journal*

American Society of Agricultural Engineers
2950 Niles Road, Saint Joseph, Michigan MI 49085-9659, U.S.A.
- *Transactions of the ASAE*
- *Agricultural Engineering*

American Society of Agronomy
677 South Segoe Road, Madison, Wisconsin WI 53711, U.S.A.
- *Agronomy Journal*
- *Journal of Production Agriculture*

American Society for Photogrammetry and Remote Sensing
210 Little Falls Street, Falls Church, Virginia VA 22046-4398, U.S.A.

American Society of Plant Physiology
15501 Monona Drive, Rockville, Maryland MD 20855-2719, U.S.A.

Asian Vegetable Research and Development Centre
P.O. Box 42, Shanhua Tainan 741, Taiwan

Australian Centre for International Agricultural Research
G.P.O. Box 1571, Canberra ACT 2601, Australia
- *ACIAR Newsletter*

Bangladesh Jute Research Institute
Tejgaon, Dacca 15, Bangladesh

Bangladesh Rice Research Institute
Joydevpur, Dacca, Bangladesh
- *Orissa*

Bureau of Sugar Experiment Stations
99 Gregory Terrace, Brisbane, Queensland 4000, Australia

Cacao Research Institute
P.O. Box 8, Tafo, Ghana

Central Coffee Research Institute
Chikmagalur District, Karnataka, India

Central Institute for Cotton Research
Nagpur 440001, India

Central Plantation Crops Research Institute
Kasaragod 67012, 4 Kerela, India

Central Potato Research Institute
Simla 171001, India

Central Rice Research Institute
Cuttack 753006, Orissa, India
Central Tuber Crops Research Institute
Sreekariyan, Trivandrum 17, Kerala, India
Centre d'Etudes et d'Expérimentation du Machinisme Tropical
Parc de Tourvoie, 92160 Antony, France
- *Machinisme Agricole Tropical*

Centro Agronómico Tropical de Investigación y Ensenanzã
Turrialba, Costa Rica
- *Turrialba*

Centro Internacional de Agricultura Tropical
Apartado Aereo 6713, Cali, Colombia
- *CIAT International*
- *Paginas de Contenido = Pages of Contents*

Centro Internacional de Mejoramiento de Maiz y Trigo
Londres 40, Aportado Postal 6-641, México 6, D.F., México
- *Farming System Bulletin Eastern and Southern Africa*
- *CIMMYT Today*

Centro Internacional de la Papa
Apartado Postal 5969, Lima, Peru
- *CIP Circular*

Centro Nacional de Informacão Documental Agricola
Esplanada dos Ministerios
Annexo I de Ministerio da Agricultura, Bloco B, Ala Oeste Terreo e 1 andar, C.P. 102432, 70043, Brasilia, Brasil
Coconut Research Institute of Sri Lanka
Lunuwila, Sri Lanka
Coffee Research Station
P.O. Box 4, Ruiru, Kenya
Consultative Group on International Agricultural Research
1818 H Street North West, Washington, DC 20433, U.S.A.
- *Newsletter*

Cooperation Center of Agricultural Research for Development
BP 5035, 34032 Montpellier, CEDEX, France
(Continuation of GERDAT)
- *Agritrop*

Crop Science Society of America
677 South Segoe Road, Madison, Wisconsin WI 53711, U.S.A.
- *Crop Science*

Département Systémes Agraires
Avenue du Value de Montferrand, B.P. 5035, 34032 Montpellier, CEDEX, France
- *Cahiers de la recherche développement*

Empresa Brasileira de Pesquisa Agropecuaria
Departemento de Difusão de Technologia, SCS quadro 8, Bloco B, No. 60, Supercenter Venancio 2000 4 andar, Brasilia, Brasil
- *Pesquisa Agropecuaria Brasileira*

Entomological Society of America
9301 Annapolis Road, Lanham, Maryland MD 20706, U.S.A.
- *Annals of the ESA*
- *Bulletin of the ESA*

Farming Systems Support Project
Institute of Food and Agricultural Science, University of Florida, 3028 McCarthy Hall, Gainesville, Florida FL 32611, U.S.A.
- *Farming Systems Support Project Newsletter*

Federation of European Society of Plant Physiology
Secr. J.E. Tillberg, Department of Botany, University of Stockholm, Stockholm S-106, 91 Stockholm, Sweden
- *Physiologia Plantarum*

Food and Agriculture Organisation of the U.N.
Via delle Terme di Caracalla, 00100 Rome, Italy
- *Land and Water Newsletter for Field Staff of the Land and Water Development Division*
- *Irrigation and Drainage Paper*
- *Soils Bulletin*
- *Plant Production and Protection Paper*
- *Plant Production and Protection Series*
- *Better Farming*
- *Agricultural Service Bulletin*
- *Agricultural Development Paper* (was stopped a long time ago, but is still valuable)
- *Agricultural Studies*

Gestion, Recherches, Documentation et Appui Technique
(since 1984, CIRAD)

Indian Institute of Sugarcane Research
Lucknow, Uttar Pradesh, India

Indian Rubber Research Institute
Kottayam, Kerala, India

Information Centre for Low External Input Agriculture
Kastanjelaan 5, 3830 AB Leusden, The Netherlands
- *ILEIA Newsletter*

Institut National de la Recherche Agronomique
Service des Publication, Route de Saint Cyr, F 78026 Versailles, CEDEX, France

Institut de Recherches Agronomiques Tropicales et des Cultures Vivrières
45 bis Avenue de Belle-Gabrielle, 94130 Nogents Marne, France
- *L'Agronomie Tropicale*

Institut de Recherches du Café, du Cacao, et autres Plantes Stimulantes
42 Rue Scheffer, 75116 Paris, France
- *Cafe, Cacao, The*

Institut de Recherches du Coton et des Textiles exotiques
42 Rue Scheffer, 75116 Paris, France
- *Coton et Fibres Tropicales*

Institut de Recherches sur les Fruits et Agrumes
6 Rue du General Clergerie, 75116 Paris, France
- *Fruits*

Institut de Recherches pour les Huiles et Oléagineux
11 Square Pétrarque, 75116 Paris, France
- *Oléagineux*

Instituto de Investigacão Centifica Tropical
Rua Jau, 47, 1, 1300 Lisboa, Portugal
- *Garcia de Orta serie de ....*

Inter-American Institute for Cooperation on Agriculture
P.O. Box 55, 2200 Coronado, Costa Rica

International Board for Plant Genetic Resources
C/o FAO, Via delle Terme di Caracalla, 00100 Rome, Italy
- *Plant Genetic Resources – Newsletter*

International Board for Soil Research and Management
P.O. Box 9-109, Bangkok 10900, Thailand
- *IBSRAM Newsletter*

International Center for Agricultural Research in Dry Areas
P.O. Box 14/5055, Beirut, Lebanon
- *FABIS Newsletter*
- *Lens Newsletter*
- *Rachis Newsletter*
- *Farming Systems Newsletter*

International Centre of Insect Physiology and Ecology
P.O. Box 30772, Nairobi, Kenya

International Commission on Irrigation and Drainage
48 Nyaya Marg Chanakyauri, New Delhi 110021, India
- *ICID Bulletin*

International Council for Research in Agroforestry
P.O. Box 30677, Nairobi, Kenya
- *Agroforestry Today* (a continuation of *ICRAF Newsletter*)

International Crops Research Institute for the Semi-Arid Tropics
Patancheru P.O., Andhra Pradesh 502324, India
- *At ICRISAT*
- *International Chickpea Newsletter*
- *International Pigeon Pea Newsletter*
- *SMIC Newsletter* (sorghum and millet)

International Development Research Centre
P.O. Box 8500, Ottawa, Canada K1G 3H9
- *IDRC Reporter*

International Institute for Aerial Survey and Earth Science
P.O. Box 6, 7500 AA Enschede, The Netherlands
- *ITC Journal*

International Institute for Land Reclamation and Improvement
P.O. Box 45, 6700 AA Wageningen, The Netherlands

International Institute of Tropical Agriculture
P.O. Box 5320, Ibadan, Nigeria
- *IITA in Brief*
- *Paradisiaca* (plantain and other cooking bananas)
- *Tropical Grain Legume Bulletin*

International Irrigation Centre
Utah State University, Logan, Utah UT 84322-4150, U.S.A.
International Irrigation Management Institute
52 New Parliament Road, Rajagiriya, via Colombo, Sri Lanka
International Livestock Center for Africa
P.O. Box 5689, Addis Ababa, Ethiopia.
- *ILCA Newsletter*
- *ILCA Bulletin*

International Rice Research Institute
P.O. Box 933, Manila, Philippines
- *IRRI Newsletter*
- *IRRI Reporter*

International Service for National Agricultural Research
P.O. Box 933 75, 2509 AJ The Hague, The Netherlands
International Society of Soil Science
C/o International Soil Reference and Information Centre,
P.O. Box 353, 6700 AJ Wageningen, The Netherlands
Jute Agricultural Research Institute
Barrackpore 743101, West Bengal, India
National Cereals Research Institute
PMB 5042, Moor Plantation, Ibadan, Nigeria
National Root Crops Research Institute
PMB 1006, Umuahia, Nigeria
Nigerian Institute of Palm Oil Research
PMB 1030, Benin City, Nigeria
Office de la Recherche Scientific et Technique Outre-Mer
Librairie – Vente – Publicite, 70-74 Route d'Aulnay, 93143 Bondy, CEDEX, France
- *Cahiers ORSTOM Pedology*
- *Cahiers ORSTOM Hydrology*

Overseas Development Institute
Regent's College, Inner Circle, Regent's Park, London NW1 4NS, England.
Overseas Development National Resources Institute
127 Clerkwell Road, London EC1 R5DB, England
(formerly Land Resources Development Centre and Tropical Development and Research Institute)
- *Newsletter ODNRI*

Palm Oil Research Institute of Malaysia
Kuala Lumpur, Malaysia
Pineapple Research Institute of Hawaii
2500 Dole Street, Honolulu, Hawaii HI, U.S.A.
Royal Institute for the Tropics
Mauritskade 63, 1092 AD Amsterdam, The Netherlands
- *Abstracts on Tropical Agriculture*

Rubber Research Institute of Malaysia
P.O. Box 150, Kuala Lumpur, Malaysia.
Rubber Research Institute of Nigeria
PMB 1049, Benin City, Nigeria

Rubber Research Institute of Sri Lanka
Dartonfield, Agalawatta, Sri Lanka
Soil Conservation Society of America
7515 North East Street, Ankeny Road, Ankeny, Iowa IA 50021, U.S.A.
• *Journal of the SCSA*
Soil Science Society of America
677 South Segoe Road, Madison, Wisconsin WI 53711, U.S.A.
• *SSSA Journal*
South African Sugar Association Experiment Station
Mount Edgecombe, Natal, South Africa
Southern African Centre for Cooperation in Agricultural Research
Private Bag 00108, Gabarone, Botswana
• *SACCAR Newsletter*
Sugarcane Breeding Institute
Coimbatore 641007, India
Sugarcane Research Institute
Ishurdi, Pabna, Bangladesh
Sugar Industry Research Institute
Reduit, Mauritius
Sugar Industry Research Institute
Kendal Road, Mandeville, Jamaica
Taiwan Sugar Research Institute
Tainan, Taiwan
Tea Research Institute of Sri Lanka
Saint Coombes, Talawakelle, Sri Lanka.
Technical Centre for Agricultural and Rural Cooperation (CTA)
P.O. Box 380, 6700 AJ Wageningen, The Netherlands
• *Spore: Bi-Monthly Bulletin of the CTA*
Tobacco Research Board
P.O. Box 1909, Harare, Zimbabwe
Tocklai Experimental Station (tea)
Cinnamara PO, Assam, India
UPASI Tea Experiment Station
Devarshola, India
West Africa Rice Development Association Association pour le Développement de Riziculture en Afrique de l'Ouest
P.O. Box 1019, Monrovia, Liberia
• *WARDA Newsletter*
World Bank
1818 H Street North West, Washington, DC 20433, U.S.A.
World Meteorological Organization
Case postale no. 5, CH-1211 Geneve 20, Switzerland.

Appendix 6
Addresses of Publishers and Booksellers

Agricultural Publications
Portuguese/Spanish Publications
Reference Books

Agricultural Publications

Addison Westley
Finchamstead Road, Workingham, Berks RG11 2N2, England
Agribook Store Winrock International
1611 North Kent Street, Arlington, Virginia VA 22209, U.S.A.
Amerind Books on Agriculture
N-56 Cannaught Circus, New Delhi 110001, India
Ann Arbor Science
P.O. Box 1425, Ann Arbor, Michigan MI 48106, U.S.A.
Edward Arnold
P.O. Box 34, Berkshire SL6 5B5, England
A.V.I. Publishing Co.
c/o Van Nostrand Reinhold, Molly Millar's Lane, Workingham, Berks, RG11 2PY, England
A.A. Balkema
P.O. Box 1675, 3000 BR Rotterdam, The Netherlands
Batsford Ac.
4 Fitzharding Street, London W1H 0AH, England
Blackwell Scientific Publishers
Osney Mead, Oxford OX2 0EL, England
Bumpus Haldane Maxwell
Olney, Bucks MK46 4BN, England
Cambridge University Press
Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU, England
Chapman Hall
11 New Fetter Lane, London EC4P 4EE, England
Commonwealth Agricultural Bureaux International
Walling ford, Oxon, OX10 8DE, England
CRC Press
2000 Corporate Boulevard North West, Boca Raton, Florida FL 33431, U.S.A.
Croom Helm
Provident House, Burrell Row, Beckenham, Kent BR3 1AT, England
Elsevier
P.O. Box 211, 1000 AE Amsterdam, The Netherlands
Heffers Booksellers
20 Trinity Street, Cambridge CB2 3NG, England

Heinemann
Windmill Press, Kingswood, Tadworth, Surrey KT20 6TG, England
Intermediate Technology
9 King Street, London WC2E 8HW, England
Kluwer Academic Publications Group
Distribution Center, P.O. Box 322, 3300 AH Dordrecht, The Netherlands
Krieger Publishing
P.O. Box 9542, Melbourne, Florida FL 32902-9542, U.S.A.
Lavoisier
11 Rue Lavoisier, 75384 Paris, CEDEX 08, France
Libraries Unlimited
3 Henrietta Street, London WC2 8LU, England
Longman
Longman House, Brint Mill, Marlow, Essex CM20 2JE, England
G.P. Maissonneuve et Larose
15 Rue Victor Cousin, Paris (V), France
Josef Margraf
Auf Aigen 3, 7447 Aichtal, Germany
Miller Freeman
500 Howard Street, San Francisco, California CA 94105, U.S.A.
Oxford University Press
Walton Street, Oxford OX2 6DP, England
Pergamon Press
Headington, Hill Hall, Oxford OX3 0BW, England
Pitman Publishers
Slaidburn Crescent, Fylde Road, Southport PR9 9YF, England
Plenum Press
233 Spring Street, New York NY 10013, U.S.A.
Prentice-Hall
Englewood Cliffs, New Jersey NJ 07632, U.S.A.
Pudoc
P.O. Box 4, 6700 AA Wageningen, The Netherlands
R.A.A. Library
222 Main Street, Emmaus, Pennsylvania PA 18089, U.S.A.
SATIS
P.O. Box 17227, 1001 JE Amsterdan, The Netherlands
Today Tomorrow Printers
24 B5 Desh Bandu, Gupta Road, New Dehli 110005, India
TOOL
Entrepotdok 68A/69A, 1018 AD Amsterdam, The Netherlands
TRIOPS Scientific Books
Raiffeisenstrasse 24, D-6070 Langen, Germany
Van Nostrad Reinhold
Molly Millar's Lane, Wokingham, Berkshire RG11 2PY, England
Westview Press
White Swan House, Godstone, Surrey RH9 8LN, England

John Wiley and Sons
Baffins Lane, Chichester, Sussex PO19 1UD, England
John Wiley and Sons
605 Third Avenue, New York NY 10158-0012, U.S.A.

Portuguese/Spanish Publications

Editora Agronomia Ceres
Rua Roberto Simonson 62, 5 andar C.J. 52, C.P. 3917, São Paulo, Brasil
Editora "Ave Maria"
C.E.P. 01226, Rua Martin Francisco 656, Vila Buarque, São Paulo, Brasil
Editora Edgard Blucher
0 1000 C.P. 5450, São Paulo S.P. Brasil
Editora Moderna
Rua Alfonso Bras 431, CEP 04511, São Paulo S.P., Brasil
Editorial Agricola Espanola
Calle Caballero de Gracia 24, 28013 Madrid, Espana
Fundação de Estudos e Pesquisas en Agronomia
Rodovia Carlos Tonanni Km 5, 14870 Jabotical S.P., Brasil
Icone Editora
R. Anhanguera 66, 01135 São Paulo S.P., Brasil
Instituto Campineiro de Ensino Agricola
Rua Antonio Lapa 78, C.P. 1148, Campinas S.P., Brasil
Litexa Portugal
Av. Rainha D. Amelia 22-A, 1600 Lisboa, Portugal
Livraria Freitas Bastos
Rua 7 de Setembro 127/129, 20.050 Rio de Janeiro, Brasil
Livraria Nobel
R. da Balsa 559, São Paulo, CEP 02910, Brasil
Livraria Portugal
Rua do Carmo 70-74, Apart 2681, 1117 Lisboa, Portugal
Mundi-Prensa
Castello 37, 28001 Madrid, Spain
Porto Editoria
Rua da Restauração, 365-4099 Rorto Codex, Portugal
SAGRA S.A.
Editora e distribuidora, Rua Joao Alfredo 444, C.P. 601, Porto Alegre, 90.000 RS, Brasil

Reference Books

Association of Commonwealth Universities
John Foster House, 35 Gordon Square, London WC1H 0PF, England
Bowker
Borough Green, Sevenoaks, Kent TN15 8PH, England

Butterworth
Borough Green, Sevenoaks, Kent TN15 8PH, England
Dekker
Elisabeth Strasse 19, Postfach 34, 4010 Basel, Switserland
Europa Publications
18 Bedford Square, London WC1B 3JN, England
Gale Research Incorporated
Book Tower, Detroit, Michigan MI 48226, U.S.A.
Gower
Gower House, Croft Road, Aldershot, Hants GU11 3HR, England
McGraw Hill
Shoppen Hangers Road, Maidenhead, Berkshire SL6 2QL, England
McGraw Hill
1211 Avenue of the Americas, New York NY 10020, U.S.A.
Macmillan
Houndsmill, Basingstoke, Hants RG21 2XS, England
Mansell
35-37 William Road, London NW1 3ER, England
Saur K.G.
P.O. Box 711009, D-8000 München, Germany

Appendix 7
List of Subject Groups

0	Generalities
3	Social Sciences
33	Economics
37	Education
51	Mathematics
519	Statistics Experimental Agriculture
52	Geodesy
528	Remote Sensing Geographical Information Systems
53	Physics
532	Hydraulics
54	Chemistry
55	Geology
551.5	Agro-Meteorology
556	Hydrology Evapotranspiration
57	Biological Sciences
58	Botany
581.1	Plant Physiology Water Stress
59	Zoology
595.7	Entomology
62	Civil Engineering
63	Agriculture
63(213)	Tropical Agriculture
63(...)	Agriculture Mother Country
630.0	Forestry (depending on the number of books, divided into more groups)
631.1	Farm Economics Farming Systems
631.2	Farm Buildings
631.3	Agricultural Engineering Animal Traction
631.4	Soil Science
631.43	Physical Soil Science

631.45 Soil Erosion/Soil Conservation
631.46 Biological Soil Science
631.47 Soil Surveys/Land Evaluation/Soil Classification
631.5 Soil Management
631.52 Plant Breeding
631.58 Systems of Cultivation/Dryland Farming
631.6 Rural Engineering/Soil and Water Engineering
631.67 Irrigation/Crop Water Requirement
631.8 Soil Fertility/Fertilizers/Plant Nutrition

632 Plant Diseases
632.9 Plant Protection/Pest Control

633 Various Crops
633.1 Cereals, Grain Crops
633.11 Wheat
633.15 Maize
633.18 Rice

633.2/3 Forage Grasses/Forage Plants/Leguminoses
633.4 Root Crops/Tuber Crops
633.5 Textile and Fibre Plants
633.6 Sugar and Starch Plants
633.7 Tobacco/Tea/Coffee/Cacao
633.8 Aromatic Plants, Oil Plants, Medical Plants
633.9 Other Industrial Plants

634.1/8 Fruits Crops/Trees/Nuts

635.1/8 Vegetables

636 Zootechnology/Livestock/Domestic Animals

637 Products of Domestic Animals

638 Apiculture

639 Fishery

64 Domestic Science, Economy

65 Administration/Management

66 Various Industries
664.8 Conservation of Food

68 Computers

88

7 Planning

9 Geography/Biography/History

88

Appendix 8
List of Reference Books

Bibliography of Dictionaries
Encyclopedias
Multilingual Dictionaries
Descriptive Dictionaries
Abbreviations
Atlases
Information Sources
Geographical Information
Studies Abroad/Courses
Directories
Grants

Bibliography of Dictionaries

Dictionaries and Vocabularies in the Terminology and Reference Library, 1966-1981. FAO. 1983. 224 pp.

Idem, *1982-1985.* FAO 1986. 66 pp.

Included are mono-, bi- and multi-lingual dictionaries on various agricultural subjects.

Encyclopedias and Dictionaries of the World: The Most Complete Guide to Standard Reference Sources Ever Compiled. Pergamon Press. 154 pp.

Encyclopedias

The New Encyclopaedia Britannica. 1988. (15th Ed.) 32 Vols.

Encyclopedia of Science and Technology. 1987. (6th Ed.) 20 Vols. McGraw Hill. 13,100 pp.

Multilingual Dictionaries

E = English	F = French	G = German	D = Dutch
I = Italian	P = Portuguese	S = Spanish	R = Russian

Agricultural Engineering: Multilingual Illustrated Dictionary.* 1987. H. Steinmetz. Margraf. 509 pp. G-E-F-S-Czech.

Elsevier's Dictionary of Agriculture.* 1986. (5th Ed.) G. Haensch and G. Haberkamp de Anton. 1,264 pp. G-E-F-S-I-R.

* Asterisk denotes the subjects, arranged alphabetically

Animal Production: Multilingual Illustrated Dictionary*. 1986. H. Steinmetz and F.J. Magnus. Margraf. 550 pp. G-E-F-S-Czech.

*Elsevier's Dictionary of Botany**. 1979, 1982. Vol. 1: *Plant Names*. 580 pp. Vol. 2: *General Terms*. 744 pp. P. Macura. E-F-G-Latin-R.

*Multilingual Dictionary of Technical Terms in Cartography**. 1973. International Cartographic Association. Franz Steiner Verlag. 573 pp. G-E-F-S-R.

Elsevier's Dictionary of Chemistry: Including Terms from Biochemistry*. 1983. A.F. Dorian. 685 pp. E-F-S-I-G.

Quadrilingual Economics Dictionary*. 1980. F.J. de Jong. Nijhoff. 685 pp. E-F-G-D.

Farm Implements and Machinery*: Multilingual Illustrated Dictionary*. 1982. H. Steinmetz. Steinmetz. 512 pp. G-E-F-S-I-D.

Elsevier's Dictionary of Food Science and Technology**. 1977. I.D. Morton and C.E. Morton. 207 pp. E-F-S-G, with index of Latin names.

*Elsevier's Dictionary of Horticulture**. 1970. J. Nijdam and A. de Jong. 561 pp. E-F-D-G-Danish-Swedish-S-I-Latin.

Horticultural Techniques and Implements*: Multilingual Illustrated Dictionary*. 1972. H. Steinmetz. Steinmetz. 396 pp. G-E-F-S-I-D.

*Elsevier's Dictionary of Environmental Hydrogeology**. 1990. H.O. Pfannkuch. 332 pp. E-F-G.

Elsevier's Dictionary of Hydrology and Water Quality Management**. 1991. J.D. van der Tuin. 528 pp. E-F-S-D-G.

*International Glossary of Hydrogeology**. 1978. UNESCO. 165 pp. E-F-S-R.

*International Glossary of Hydrology**. 1974. World Meteorological Organization. 393 pp. E-F-S-R.

*Quadrilingual Collection of Usual Words in Hydrology**. 1969. P. Dubreuil. ORSTOM. 113 pp. E-F-P-S.

*Selected Terms of Irrigation**. 1978. Terminology Bulletin 34. FAO. 89 pp. E-F-S

Multilingual Technical Dictionary on Irrigation and Drainage**. 1983. Deutscher Verband für Wasserwirtschaft und Kulturbau DVWK. 1009 pp. E-F-G-S.

Dictionario de termos tecnicos de irrigação e drenagem**. 1978. Associação Brasileira de Irrigação e Drenagem. 615 pp. P-E-F.

Multilingual Technical Dictionary on Irrigation and Drainage**. 1975. G.E. Papadopoulos. ICID. 1,060 pp. Greek-E-F-G.

*Elsevier's Glossary of Land Resources**. 1984. G. Logie. 303 pp. E-F-I-D-G-Swedish.

Dictionarium Bibliothecarii Practicum, as usum internationalem in 22 linguis = The Librarian's* Practical Dictionary in 22 languages*. 1977. Verlag Dokumentation. 385 pp.

Elsevier's Dictionary of Library Science, Information, and Documentation*. 1973. W.E. Clason. 597 pp. E-F-S-I-D-G.

Livestock Feeding and Management*: Multilingual Illustrated Dictionary*. 1966. J. Abeijon Veloso, J. Bougler, and A.G. Cock. Lohmann. 300 pp. G-E-F-S-I-D.

International Meteorological Vocabulary*. 1966. World Meteorological Organization. Technical Publication 182. 276 pp. E-F-G-S.

Elsevier's Glossary of Planning and Development**. 1986. G. Logie. 254 pp. E-F-I-D-G.

*Elsevier's Dictionary of Horticultural and Agricultural Plant Production**. 1990. P.J. Stadhouders, J. Doorenbos, and C. Dorsman. 817 pp. E-D-F-G-Danish-Swedish-I-S-P-Latin.

Elsevier's Dictionary of Wild and Cultivated Plants**. 1989. W.E. Clason. 1,016 pp. Latin-E-F-S-I-D-G.

Plants and Plant Products* of Economic Importance*. 1983. M. Merino-Rodriguez. FAO. 2 Parts. Terminology Bulletin 25/1-2. E-F-S-G.

Multilingual Dictionary of Remote Sensing and Photogrammetry**. 1984. American Society of Photogrammetry. G.A. Rabchevsky. 343 pp. E-F-G-I-P-S-R.

*Elsevier's Dictionary of Soil Mechanics**. 1965. A.D. Visser. 359 pp. E-F-G-D.

*Multilingual Vocabulary of Soil Science**. 1960. (2nd. Ed.) G.V. Jacks, R. Tavernier, and D.H. Boalch. FAO. 428 pp. E-F-I.

Elsevier's Sugar Dictionary*. 1984. L.Y. Chaballe. 321 pp. E-F-S-D-G-Latin.

Elsevier's Dictionary of Trees and Shrubs**. 1986. H. Vaucher. 413 pp. E-F-G-I-Latin.

*Elsevier's Dictionary of Water and Hydraulic Engineering**. 1987. J.D. van der Tuin. 449 pp. E-F-S-D-G.

*Interdisciplinary Dictionary of Weed Science**. 1990. G.H. Williams and W. van der Zweep. Pudoc. 546 pp. Danish-G-E-S-F-I-D-P.

Descriptive Dictionaries

Black's Agricultural Dictionary*. (2nd. Ed.) 1985. D.B. Dalal-Clayton. 414 pp.

*Dictionary of Agriculture**. 1983. L.L. Somani and S.B.S. Tikka. Agricole Publishing Academy. 463 pp.

The Language of Biotechnology: A Dictionary of Terms*. 1988. ACS. 254 pp.

*The Macmillan Dictionary of Biotechnology**. 1986. J. Coombs. 320 pp.

*The Penguin Dictionary of Botany**. 1983. S. Blackmore and E. Toohill. 390 pp.

*The Dictionary of Cell Biology**. 1989. C.J. Brett, A.S.G. Curtis, J.A.T. Dow, and J.M. Lackie. Academic Press. 262 pp.

CRC Handbook of Chemistry and Physics**. 1987. (68th Ed.) R.C. Weast (Editor). CRC Press. 2,464 pp.

*The Macmillan Dictionary of Chemistry**. 1987. D.B. Hibbert and A.M. James. 576 pp.

Elsevier's Dictionary of Chemistry: Including Terms from Biochemistry**. 1983. A.F. Dorian. 685 pp.

*The McGraw Hill Dictionary of Earth Sciences**. 1984. 900 pp.

*The New Palgrave: A Dictionary of Economics**. 1987. J. Eatwell, M. Milgate, P. Newman, and R.H.I. Palgrave. Macmillan. 4 Vols.

Elsevier's Economics Dictionary*. 1983. (2nd Ed.) D.W. Moffat. 331 pp.

The McGraw Hill Dictionary of Modern Economics: A Handbook of Terms and Organizations*. 1983. (3rd Ed.) D. Greenwald. 704 pp.

*The Macmillan Dictionary of Modern Economics**. 1981. D.W. Pearce. 540 pp.

A Dictionary of Economics and Commerce**. 1977. J.L. Hanson. English Language Book Society. 472 pp.

The McGraw Hill Encyclopedia of Electronics and Computers**. 1988. (2nd. Ed.). 980 pp.

*The Macmillan Dictionary of the Environment**. 1988. (3rd Ed.). M. Allaby. 448 pp.

The McGraw Hill Encyclopedia of Food, Agriculture*, and Nutrition**. 1977. D.N. Lapedes. 732 pp.

*A Dictionary of Genetics**. 1990. R.C. King and W.D. Stansfield. Oxford University Press. 406 pp.

The Macmillan Dictionary of Genetics and Cell Biology**. 1987. N. Maclean. 448 pp.

*The Dictionary of Human Geography**. 1981. R.J. Johnston. Blackwell. 411 pp.

*The Encyclopedic Dictionary of Physical Geography**. 1988. A. Goudie. Blackwell. 528 pp.

*The McGraw Hill Encyclopedia of the Geological Sciences**. 1988. (2nd. Ed.) S.P. Parker. 950 pp.

*The Cambridge Encyclopedia of Life Sciences**. 1985. A. Friday and D.S. Ingram. Cambridge University Press. 432 pp.

*The Macmillan Dictionary of Life Sciences**. 1983. (2nd Ed.) E.A. Martin.

*The Macmillan Dictionary of Microcomputing**. 1985. (3rd Ed.) C.J. Sippl. 473 pp.

*The Macmillan Dictionary of Plant Science**. 1989. W.E. Peat and D.A. Baker. 300 pp.

*The Macmillan Dictionary of Physics**. M.P. Lord.

The McGraw Hill Dictionary of Physics and Mathematics**. 1978. D.N. Lapedes. 1061 pp.

The McGraw Hill Dictionary of Scientific and Technical Terms**. 1984. (3rd Ed.). 178 pp.

*The Macmillan Dictionary of Sociology**. M. Mann. 320 pp.

Dictionary of Soils and Fertilizers**. 1989. L.L. Somani. Mittal Publications. 5 Parts.

*Dictionnaire de science du sol**. 1990. (2nd Ed.) J. Lozet and C. Mathieu. Lavoisier. 392 pp.

Abbreviations

International Encyclopedia of Abbreviations and Acronyms of Organizations. 1989. (3rd Ed.) P. Wemmroch and P. Spillane. Saur. 6 Vols.

World Guide to Abbreviations of Organizations. 1988. (8th Ed.) F.A. Buttress and H.J. Meaney. Blacki. 777 pp.

Dictionnaire des sigles: scientifiques, techniques, et economiques. 1987. (2nd Ed.) J. Murith and J.M. Bocabeille. Lavoisier. 471 pp.

Elsevier's Abbreviations Dictionary. 1985. (7th Ed.) R. Desola. 1240 pp.

Abbreviations used by FAO for International Organizations, Congresses, Commissions, Committees. 1988. (4th Revised Ed.) FAO Terminology Bulletin 27. 205 pp.

Acronyms, Initialisms, and Abbreviations Dictionary: A Guide to Acronyms, Initialisms, Abbreviations, Contractions, Alphabetic Symbols, and Similar Condensed Appelations. 1990 (14th Ed.) Gale.

Atlases

Geo Center Internationales Landkartenhaus
Postfach 800507
D-7000 Stuttgart 80
Germany.

The Times Atlas of the World. Comprehensive Edition. 1985. Times Book Ltd. 1985.

Information Sources

*Key Guide to Information Sources in Agricultural Engineering**. 1985. B. Morgan. Mansell. 209 pp.

Guide to Sources for Agricultural and Biological* Research*. 1981. J.R. Blanchard and L. Farrell. University of California Press. 735 pp.

Information Sources in Agriculture and Food Science**. 1981. G.P. Lilley. Butterworth Guides to Information Sources. 603 pp.

*Towards Sustainable Agriculture**. 1988. AGRECO ILEIA.
Part I: *Abstracts, Periodicals, Organizations*;
Part II: *Bibliography*.

*Keyguide to Information Sources in Aquaculture**. 1989. D.A. Turnbull. Mansell. 137 pp.

Biological Information: Sources and Limitations*. 1981. A.J.H. van Es. Infic.

Using the Biological Literature: A Practical Guide*. 1981. E.B. Davis. Books in Library and Information Science; Vol. 35. Dekker. 284 pp.

*Information Sources in Biotechnology**. 1986. (2nd Ed.) A. Crafts-Lighty. Stockton. 403 pp.

*Guide to Information Sources in the Botanical Sciences**. 1987. E.B. Davis. Libraries Unlimited. 175 pp.

*Information Sources in Cartography**. 1989. C.R. Perkins and R.B. Parry. Bowker-Saur. 540 pp.

*Key Guide to Information Sources in Cartography**. 1986. A.G Hodgkiss and A.F. Tatham. Mansell. 253 pp.

*Information Sources in Chemistry**. 1990. (4th Ed.) R.T. Bottle and J.F.B. Rowland. Saur. 320 pp.

*Guide to Basic Information Sources in Chemistry**. 1979. A. Antony. John Wiley and Sons. 219 pp.

Drainage: An Annotated Guide to Books and Journals*. 1984. G. Naber. Bibliography 18, ILRI. 37 pp.

*Information Sources in the Earth Sciences**. 1989. (2nd Ed.) J.E. Hardy, D.N. Wood, and A.P. Harvey. Bowker-Saur. 518 pp.

*Information Sources in Economics**. 1984. (2nd Ed.) J. Fletcher. Butterworths. 339 pp.

Environmental Economics: A Guide to Information Sources*. 1979. B.C. Field and C.E. Willis. Gale. 243 pp.

Key Resources on Teaching, Learning, Curriculum, and Faculty Development: A Guide to Higher Education Development*. 1988. R.J. Menges and B.C Mathis. Jossey-Bass. 406 pp.

*Information Sources in Engineering**. 1985. (2nd Ed.) L.J. Anthony. Butterworths. 579 pp.

Entomology: A Guide to Information Sources*. 1990. (2nd Ed.) P. Gilbert and C.J. Hamilton. Mansell. 259 pp.

Key Guide to Information Sources in Food Science and Technology**. 1985. S. Green. Mansell. 231 pp.

*A Guide to Information Sources in the Geographical Science**. 1983. S. Goddard. Croom Helm. 273 pp.

Information Sources on Grain Processing and Storage**. 1982. UN Industrial Development Organization. 97 pp.

*Information Sources in Grey Literature**. 1989. (2nd Ed.) C.P. Auger. Bowker-Saur. 175 pp.

Information on Hydroponics*. In: *Hydroponic Food Production*. 1987. (Revised 3rd Ed.) H.M. Resh. Woodbridge Press. 384 pp.

Abstract Journals on Irrigation, Drainage*, and Water Resources Engineering**. 1977. L.F. Abell. Bibliography 13. ILRI, Wageningen. 47 pp.

Sources of Information in Librarianship and Information Science**. 1987. (2nd Ed.) R. Prytherch. Gower. 153 pp.

*Information Sources in the Life Sciences**. 1987. (3rd Ed.) H.V. Wyatt. Butterworths. 191 pp.

Using the Mathematical Literature: A Practical Guide*. 1979. B.K. Schafer. Dekker. 160 pp.

Use of Mathematical Literature*. 1977. A.R. Dorling. Butterworths. 260 pp.

Guide to Agricultural Meteorological Practices*. 1981. (2nd Ed.) WMO Technical Publication 134.

Plant Pathologist's Pocketbook*. 1983. (2nd. Ed.) A. Johnston and C. Booth. Commonwealth Mycological Institute. 439 pp. Covers abstract journals, journals, books, international institutions.

*Information Sources in Physics**. 1985. D.F. Shaw. Butterworths. 456 pp.

*Keyguide to Information Sources in Remote Sensing**. 1988. E. Hyatt. Mansell. 274 pp.

The Remote Sensing Sourcebook: A Guide to Remote Sensing Products, Services, Facilities, Publications, and Other Materials*. 1986. D.J. Carter. Kogan Page. 175 pp.

Remote Sensing Yearbook*. 1986. A. Cracknell and L. Hayes. Taylor and Francis. Chapter 14: Guide to Teaching and Learning Sources in Satellite Remote Sensing. Chapter 15: Guide to Resources in Remote Sensing.

Information Sources in Science and Technology*: A Practical Guide to Traditional and Online Use*. 1986. (2nd Ed.) C.G. Parker and R.V. Turley. Butterworths. 328 pp.

Sources of Information in the Social Sciences: A Guide to the Literature*. 1986. (3rd Ed.) W.H. Webb. American Library Association. 777 pp.

Sociology: A Guide to Reference and Information Sources*. 1987. S.H. Aby. Libraries Unlimited. 231 pp.

Appropriate Technology Source Book: A Guide to Practical Books for Village and Small Community Technology*. 1986. (Revised and Enlarged Edition). K. Darrow and M. Saxenian. Volunteers in Asia Press. 800 pp.

Wastewater Management: A Guide to Information Sources*. 1976. C. Tchobanoglous, R. Smith, and R. Crites. Gale. 202 pp.

Sources of Information in Water Resources: An Annotated Guide to Printed Materials*. 1976. G.J. Giefer. Water Information Centre. 290 pp.

Water Resources: A Bibliographic Guide to Reference Sources*. 1975. V.H. Ralston. University of Connecticut. 123 pp.

Geographical Information

Africa South of the Sahara. 1988. (18th Ed.) 1,150 pp.
Middle East and North Africa. 1988. (35th Ed.) 900 pp.
South America, Central America, and the Caribbean. 1987. (2nd. Ed.) 683 pp.
Far East and Australia. 1988. (20th Ed.) 1,100 pp.
Europa Publications.
For each country, gives information about physical and social geography; recent history; economy; statistical survey. Also presents a directory and a bibliography.

European Yearbook 1988: A World Survey. (29th Ed.) Europa Publications. 1988. 2 Vols. 3,175 pp.
Contains general and statistical surveys of every country in the world, constitutions, government, political parties, judicial system, religion, press, publishers, radio, tv, finance, trade and industry, transport and tourism. In addition, all the principal international organizations are listed and described in depth.

Encyclopedia of the Third World. 1983. 3 Vols. G.T. Kurian. Mansell.
For each of the countries included, gives information on location and area, climate, population, ethnic groups, language, religion, colonial experience, constitution and government, freedom and human rights, civil service, local government, foreign policy, political parties, budget, finance, agriculture.

The Statesman's Yearbook: 1986-1987. (123rd Ed.) 1986. J. Paxton (Editor). Macmillan. 1,686 pp.
Covers: international organizations, countries of the world (A-Z), history, geography, government, defence, commerce, energy and natural resources, justice.

The Current History Encyclopedia of Developing Nations. 1982. C.L. Thompson, M.M. Anderberg, and J.B. Antell. McGraw Hill. 395 pp. Discusses the economic, social, political, and geographical forces that are shaping the development of 93 developing nations. Includes a brief historical background and an analysis of each nations's future prospects.

Study Abroad, Courses

International Guide to Library and Information Science Education. 1985. J. Riss Fang and P. Nauta (Editors). Saur. An IFLA Publication. 537 pp. A reference source for worldwide educational programs in the information fields.

Study Abroad: International Scholarships: International Courses 1989-1990-1991. (26th Ed.). UNESCO. 1989. 1,394 pp.

Directories

Agricultural Information Resource Centres: A World Directory. 1990. CTA. 669 pp.

Agricultural Research Centres: A World Directory of Organizations and Programmes. 1988. Longman. 2 Vols. 1,180 pp.

Arid Land Research Institutions: A World Directory. 1988. (3rd Ed.) B.S. Hutchinson and R.G. Varaday. Allerton Press. 290 pp.

Directory of Online Databases. 1990. Cuadra Associates. 3,400 descriptions of publicly available online databases worldwide.

Information Sources on Tropical Agriculture. CTA.

Vol. 1: *EEC Countries*. 1987. 181 pp.

Vol. 2: *ACP Countries*. 1988. 337 pp.

Presents information on disciplines covered, literature collection, services and equipment available.

Online Bibliographic Databases: A Directory and Source Book. 1986. J.L. Hall and M.J. Brown. Aslib. 589 pp.

Online Databases in the Medical and Life Sciences. 1987. Cuadra Elsevier. 170 pp. Lists 795 databases and presents information on 148 online services through which the databases are accessible. The book is a subsection of the Cuadra Directory of Online Databases.

Yearbook of International Organizations 1988/1989. Union of International Associations. 1989. Sauer.

Vol. 1: *Description and Index*. (25th Ed.) 956 pp.

Vol. 2: *International Organization Participation. Country Directory of Secretariat and Membership*. (6th Ed.) 1,600 pp.

Vol. 3: *Global Action Networks. Classified Directory by Subject and Region*. (6th Ed.) 1,450 pp.

World of Learning. 1988. (38th Ed.) Europa Publications. 1,925 pp. Addresses and other details of more than 25,000 universities and colleges.

Grants

Fellowship Guide for Western Europe. University of Pittsburgh.

Grants for Study Visits by University Administrators and Librarians. Association of Commonwealth Universities. Describes 43 sources of financial aid.

Grants Register 1989-1991. 1988. C.A. Lerner. Macmillan. 779 pp.

The Individual's Guide to Grants. 1983. (2nd Ed.) J.B. Margolin. Plenum. 295 pp.

Scholarships Guide for Commonwealth Postgraduate Students. Association of Commonwealth Universities.

Appendix 9
Journals on Library Science

Abstract Journals/Reviews
Administration/Management:
- *Acquisitions*
- *Audio-Visual*
- *Lending/Document Supply*
- *Microform*
- *One-Person Library*
- *Security*
- *Serials*

Agricultural Libraries
Automation/Microcomputers
Cataloguing/Indexing/Classification
Collection Management
Information/Online Retrieval
Libraries (in a broad sense)
Maps
Portuguese Journals
Special Libraries
Training/Education

The journals have been mainly selected from the library part of Ulrich's *International Periodicals Directory*. The selection criteria were:
As many specialized journals as possible;
No regional journals;
Issued by commercial publishers or well-known organizations;
Cited by abstract journals;
Not too low in price.

Abstract Journals/Reviews

Information Science Abstracts ISA
1966 -. Monthly. U.S. $ 350.
Plenum Press, 233 Spring Street, New York NY 10013, U.S.A.
Also available online: DIALOG.

Library and Information Science Abstracts LISA
1969 -. Monthly. £157.
Library Association Publishing, Ridgmount Street, London WC1E 7AE, England.
Also available online: DIALOG, Orbit.
Also available on CD-ROM.

Pascal Thema Part 205: Sciences de l'Information Documentation
1985 -. Monthly. FF 680.
Centre National de la Récherche Scientifique, Service des Abonnements, 26 Rue Boyer, 75971 Paris, 20 France.
Paginas de Contentido: Ciensias de la Información
1979 -. Quarterly. U.S. $10.
Associación Interamericana de Bibliotecarios Documentalistas Agricolas, Codigo Postal 7170, Turrialba, Costa Rica.

Administration/Management

Information and Library Manager
1981 -. Quarterly. £18.
ELM Publications, Seaton House, Kings Ripton, Cambs PE17 2NJ, England.
Indexed: LISA, ERIC.
Journal of Library Administration
1980 -. Quarterly. U.S. $36.
Haworth Press, 12 West 32nd Street, New York NY 10001, U.S.A.
Indexed: LISA, ISA, etc.
Library Administration and Management
1975 -. Quarterly. U.S. $25.
American Library Administration and Management Association, 50 East Huron Street, Chicago, Illinois IL 60611, U.S.A.
Library Management
1976 -. 6 Year. U.S. $300.
MCB University Press, 62 Tollar Lane, Bradford, West Yorks BD8 9BY, England.

Acquisitions

Library Acquisitions: Practice and Theory
1977 -. Quarterly. U.S. $75.
Pergamon Press, Headington, Hill Hall, Oxford OX3 0BW, England.
Indexed: Curr. Cont., LISA, etc.

Audio-Visual

Audio-Visual Librarian
1973 -. Quarterly. U.S. $60.
Library Association Publishing, 7 Ridgmount Street, London WC1E 7AE, England.

Lending/Document Supply

Interlending and Document Supply: Journal of the British Library
1971 -. Quarterly. £23.
British Library. Document Supply Centre. Publication Section. Boston Spa. Wetherby LS23 7BQ. England.
Indexed: Curr. Cont. LISA. etc.

Microform

Microform Review
1972 -. Quarterly. U.S. $75.
Meckler Publishing. 11 Ferry Lane West. Westport. Connecticut CT 06880. U.S.A.
Indexed: ISA. LISA. etc.

One-Person Library

One-Person Library: A Newsletter for Librarians and Management
1984 -. Monthly. U.S. $45.
OPL Resources. Box 948. Murray Hill Station. New York NY 10156. U.S.A.

Security

Library and Archival Security
1975 -. Quarterly. U.S. $36.
Haworth Press. 12 West 32nd Street. New York NY 10001. U.S.A.
Indexed: LISA. ISA. etc.

Serials

Serials Librarian: The International Quarterly Journal of Serials Management
1976 -. Quarterly. U.S. $40.
Haworth Press. 12 West 32nd Street. New York NY 10001. U.S.A.
Indexed: Curr. Cont. LISA. etc.
Serials Review
1975 -. Quarterly. U.S. $25.
Pierian Press. Box 1808. Ann Arbor. Michigan MI 48106. U.S.A.
Indexed: Lib. Lit.. ISA. etc.

Agricultural Libraries

Agricultural Libraries Information Notes
1975 -. Monthly. Free.

99

U.S. Department of Agriculture, National Agricultural Library, 10301 Baltimore Boulevard, Beltsville, Maryland MD 20705, U.S.A.

Agricultural Information Development Bulletin

Free

Agricultural Division of U.N. Economic and Social Commission for Asia and the Pacific, U.N. Building Rajdammern, Nok Avenue, Bangkok, 10200 Thailand.

Quarterly Bulletin IAALD

1955 -. Quarterly. U.S. $20.

International Association of Agricultural Information Specialists IAALD, C/o J. van der Burg, Pudoc, P.O. Box 4, 6700 AA Wageningen, The Netherlands.

Automation/Microcomputers

Microcomputers for Information Management: An International Journal for Library and Information Services

1983 -. Quarterly. U.S. $30.

Ablex Publishing Company, 355 Chestnut Street, Norwood, New Jersey NJ 07648, U.S.A.

Access Microcomputers in Libraries

1981 -. Quarterly. U.S. $11.

DAC Publications, 3354 30th Street, San Diego, California CA 92104, U.S.A.

Electronic Library

1983 -. 6/Year. U.S. $63.

Learned Information Incorporated, 143 Old Marlton Pike, Medford, New Jersey NJ 08055, U.S.A.

Indexed: Curr. Cont., etc.

Information Intelligence Online Libraries and Microcomputers

1983 -. 10/Year. U.S. $35.

Information Intelligence Incorporated, Box 31098, Phoenix, Arizona AZ 85046, U.S.A.

Indexed: LISA.

Program: Automated Library and Information Systems

1966 -. Quarterly. 55.

ASLIB, Information House, 26-27 Boswell Street, London WC1N 3JZ, England.

Indexed: Curr. Cont., etc.

Cataloguing/Indexing/Classification

Catalogue and Index

1966 -. Quarterly. U.S. $12.

Library Association, Cataloguing and Indexing Group, C/o C.J. Koster, 18 Apple Grove, Enfield, Middx EN1 3DD, England.

Indexed: LISA, etc.

Cataloguing and Classification Quarterly

1980 -. Quarterly. U.S. $36.

100

Haworth Press, 12 West 32nd Street, New York NY 10001, U.S.A.
Indexed: Bull. Signal, LISA, etc.

FID News Bulletin
1951 -. Quarterly. U.S. $30.
International Federation for Documentation, P.O. Box 90402, 2509 LK The Hague, The Netherlands.
Indexed: LISA, ISA.
Includes 'Quarterly Document Delivery Reproduction Survey' and 'Newsletter on Education and Training Programmes for Information Personnel'.

International Cataloguing
1972 -. Quarterly. U.S. $30.
Longman, Longman House, Brint Mill, Marlow, Essex CM20 2JE, England.
Indexed: LISA, Lib. Lit.

International Classification
1973 -. 3/Year. U.S. $40.
Indeks Verlag, Woogstrasse 36a, D-6000 Frankfurt 50, Germany.
Indexed: Curr. Cont., etc.
A journal devoted to concept theory, to organization of knowledge and data, and to systematic terminology.

Journal of Documentation
1945 -. Quarterly. £65.
ASLIB, Information House, 26-27 Boswell Street, London WC1N 3JZ, England.
Indexed: Curr. Cont., Lib. Lit., etc.
A journal devoted to the recording, organizing, and dissemination of specialized knowledge.

Collection Management

Collection Management
1975 -. Quarterly. U.S. $38.
Haworth Press, 12 West 32nd Street, New York NY 10001, U.S.A.
Indexed: Bull. Signal., LISA, etc.

Information/Online Retrieval

Database: The Magazine of Database Reference and Review
1979 -. Quarterly. U.S. $65.
Online Inc., 11 Tanner Lane, Weston, Connecticut CT 06883, U.S.A.

Journal of Documentation Science: Principles and Practice
1945 -. Quarterly. U.S. $60.
ASLIP, Association for Information Management, 26-27 Boswell Street, London WC1 N, England.

Journal of Information Science: Principles and Practice
1979 -. 6/Year. U.S. $80.

Elsevier, Mayfield House, 256 Banbury Rd, Oxford OX2 7DH, England.
Indexed: Curr. Cont., LISA, etc.

Online: The Magazine of Online Information Systems
1976 -. 6/Year. U.S. $80.
Online Inc., 11 Tanner Lane, Weston, Connecticut CT 06883, U.S.A.

Online Review: The International Journal of Online Information Systems
1976 -. 6/Year. U.S. $70.
Learned Information Ltd., Besselsleigh Road, Abbington, Oxford OX13 6LG, England.

American Society for Information Science Bulletin
1974 -. 6/Year. U.S. $50.
American Society for Information Science, 1424 16th Street North West, Suite 404, Washington DC 20036, U.S.A.
Indexed: Curr. Cont., LISA, etc.

American Society for Information Science Journal
1950 -. 6/Year. U.S. $120.
John Wiley and Sons, 605 Third Avenue, New York NY 10158, U.S.A.
Indexed: Curr. Cont., LISA, etc.

Documentaliste: Science de l'Information
1964 -. 6/Year. FF 380.
Association Française des Documentalistes et des Bibliothecaires Spécialisés, 5 Avenue Franco-Russe, 75007 Paris, France.
Indexed: Bull. Signal., LISA, etc.

Information Processing and Management: Libraries, Information Retrieval Systems, and Communication Networks
1963 -. 6/Year. U.S. $250.
Pergamon Press, Headington, Mill Hall, Oxford OX3 0BW, England.
Indexed: Curr. Cont., LISA, etc.

Information Retrieval and Library Automation
1965 -. Monthly. U.S. $48.
Lomond Publications, Box 88, Mount Airy, Maryland MD 21771, U.S.A.

Information Technology and Libraries
1968 -. Quarterly. U.S. $35.
American Library and Information Technology Association, 50 East Huron Street, Chicago, Illinois IL 60611, U.S.A.
Indexed: Curr. Cont., LISA, etc.

Optical Information Systems Update: Library and Information Centre Applications
1986 -. 6/Year. U.S. $65.
Meckler Publishing, 11 Ferry Lane West, Westport, Connecticut CT 06880, U.S.A.

Libraries (in a broad sense)

American Libraries
1907 -. Monthly. U.S. $40.
American Library Association, 50 East Huron Street, Chicago, Illinois IL 60611, U.S.A.
Indexed: ISA, LISA, etc.

ASLIB Information
1973 -. Monthly. £30.
ASLIB, Information House, 26-27 Boswell Street, London WC1N 3J, England.

Information Development: The International Journal for Librarians, Archivists, and Information Specialists
1985 -. Quarterly. U.S. $70.
Mansell Publishing, 35-37 William Road, London NW1 3ER, England.

IFLA Journal
1975 -. Quarterly.
International Federation of Library Associations and Institutions IFLA, SAUR Verlag, P.O. Box 711009, D-8000 Munchen, Germany.
Indexed: Curr. Cont., Lib. Lit., etc.

International Library Review
1968 -. Quarterly. U.S. $136.
Academic Press, 24-28 Oval Road, London NW1 7DX, England.
Indexed: Curr. Cont. etc.

Journal of Librarianship
1969 -. Quarterly. U.S. $80.
Library Association Publishing, 7 Ridgmount Street, London WC1E 7AE, England.
Indexed: Curr. Cont, LISA, etc.

Library
1899 -. Quarterly. U.S. $55.
Oxford University Press, Walton Street, Oxford OX2 6DP, England.
Indexed: Curr. Cont., Lib. Lit., etc.

Library and Information Science Research: An International Journal
1979 -. Quarterly. U.S. $30.
Ablex Publishing Company, 355 Chestnut Street, Norwood, New Jersey NJ 07648, U.S.A.
Indexed: Curr. Cont., LISA, etc.

Library Association Record
1899 -. Monthly. U.S. $114.
Library Association, 47 Ridgmount Street, London WC1E 7AE, England.
Indexed: LISA, Lib. Lit., etc.

Library Journal
1876 -. Monthly. U.S. $67.
Bowker, Magazine Group, 249 West 17th Street, New York NY 10011, U.S.A.
Indexed: Curr. Cont., LISA, etc.

Library Quarterly: A Journal of Investigation and Discussion in the Field of Library Science
1931 -. Quarterly. U.S. $30.
University of Chicago Press, 5801 South Ellis Avenue, Chicago, Illinois IL 60637, U.S.A.
Indexed: LISA, Curr. Cont., etc.

Maps

Special Libraries Association: Geography and Map Division Bulletin
1947 -. Quarterly. U.S. $17.
Special Libraries Association, Geography and Map Division,
C o A.T. Sprankle, 406 East Smith Street, Topton, Pennsylvania PA 19562-1121, U.S.A.
Indexed: LISA, Lib. Lit., etc.

Portuguese Journals

Associação Portuguesa de Bibliotecarios, Arquivistas, e Documentalistas: Noticia
1975 -. Quarterly. Esc 400.
Associação Portuguesa de Bibliotecarios, Arquivistas e Documentalistas, Edificio da Bibliteca Nacional, Campo Grande 83, 1700 Lisbon, Portugal.
Brasil Câmara dos Deputados, Documentação e Informação
1951 -. 3 Year. Free.
Câmara dos Deputados, Centro de Documentacão e Informacão, Anexo 2, 70160 Brasilia DF, Brasil.
Cadernos de Biblioteconomia, Arquivista, e Documentação
1963 -. Esc 1,500.
Associação Portuguesa de Bibliotecarios, Arcquivistas Documentalistas, Edificio da Biblioteca Nacional, Campo Grande 83, 1700 Lisbon, Portugal.
Indexed: Bull. Signal.
Ciencia da Informação
1972 -. 2 Year. U.S. $40.
Instituto Brasileiro de Informação em Ciencia e Technologia, SCN Quadro 2, Bloco K, CEP 70710, Brasilia DF, Brasil.
Indexed: LISA, ISA.
Revista Brasileira de Biblioteconomia e Documentação
1975 -. Quarterly. U.S. $30.
Federação Brasileira de Associaçoes de Bibliotecarios, 40 rua Avanhandava, Conj 110, Sao Paulo, Brasil.
Indexed: LISA, Lib. Lit., etc.
Revista de Biblioteconomia de Brasilia
1973 -. U.S. $25.
Universidade de Brasilia, Departamento de Biblioteconomia, Caixa Postal 15 3011, Brasilia, Brasil.
Indexed: Bull. Signal., LISA, etc.
Revista
1972 -. U.S. $15.
Universidade Federal de Minas Gerais, Escola de Biblioteconomia, C.P.1906, Belo Horizonte, MG 31270, Brasil.
Indexed: LISA, Lib. Lit., etc.

Special Libraries

Journal of Academic Librarianship
1975 -. 6/Year. U.S. $22.
Mountainside Publications, 321 South Main Street Box 8330, Ann Arbor, Michigan MI 48107, U.S.A.
Indexed: Curr. Cont., LISA, etc.

College and Research Libraries
1939 -. 6/Year. U.S. $35.
American Library Association, 50 East Huron Street, Chicago, Illinois IL 60611, U.S.A.
Indexed: Curr. Cont., Lib. Lit, etc.

Focus: On the Center for Research Libraries
1981 -. 6/Year. U.S. $10.
Center for Research Libraries, 6050 South Kenwood, Chicago, Illinois IL 60637, U.S.A.

Special Libraries
1910 -. Quarterly. U.S. $48.
Special Libraries Association, 1700 Eighteenth Street N.W., Washington DC 20009, U.S.A.
Indexed: Curr. Cont., Lib. Lit., etc.

Outlook on Research Libraries: The Monthly Review of National and International Research Library Management
1979 -. Monthly. U.S. $145.
Elsevier, Mayfield House, 256 Banbury Road, Oxford OX2 7DH, England.

Training/Education

Journal of Education for Library and Information Science
1969 -. 5/Year. U.S. $30.
Association for Library and Information Science Education, 471 Park Lane, State College, Pennsylvania PA 16803, U.S.A.
Indexed: Curr. Cont., Lib. Lit., etc.

Education for Information: The International Review of Education and Training in Library and Information Science
1983 -. Quarterly. U.S. $100.
Elsevier, Mayfield House, 256 Banbury Rd, Oxford OX2 7DH, England.

Training and Education: A Journal for Library and Information Workers
1983 -. 3/Year. £22.
Library Association, Training and Education Group, Lomond, Scotland Lane, Horsforth, Leeds LS18 5SE, England.

Appendix 10
Addresses of Some Library Organizations and Their Journals

International
Australia
Brazil
England
France
India
Latin America
U.S.A.

International

Commonwealth Library Association
P.O. Box 40, Mandeville, Manchester, Jamaica
- *COMLA Newsletter* (quarterly)

International Association of Agricultural Information Specialists IAALD
C/o J. van der Burg, PUDOC, P.O. Box 4, 6700 AA Wageningen, The Netherlands
- *Quarterly Bulletin*

International Association of Documentalists and Information Officers
74 Rue des Saints Peres, 75007 Paris, France
- *Monthly News*

International Federation for Information and Documentation IFID = Fédération Internationale d'Information et de Documentation FID
P.O. Box 90402, 2509 LK The Hague, The Netherlands
- *FID News Bulletin* (monthly)
- *International Forum on Information and Documentation* (quarterly)
- *Newsletter on Education and Training Programmes for Information Personnel* (quarterly)

International Federation of Library Associations and Institutions IFLA
P.O. Box 95312, 2509 CH The Hague, The Netherlands.
- *IFLA Journal* (quarterly)
- *International Cataloguing* (quarterly)

Australia

Library Association of Australia
376 Jones Street, Ultimo NSW 2007, Australia
- *Australian Library Journal* (quarterly).

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Brazil

Federacão Brasileira Associações de Bibliotecarios
Rua Avanhan dava 40, conj. 110., 01306 São Paulo SP, Brasil.
- *Revista Brasileira de Bibliotecconomia e Documentacão*
- *Boletim .....*

Instituto Brasileiro de Informacão em Ciencia e Technologia
SCN Quadra 2, Bloco k, 70710 Brasilia DF, Brasil
- *Ciencia da Informação* (2 year)
- *Sumarios Correntes Brasileiros* (monthly)

England

Aslib: Association for Information Management
26-27 Boswell Street, London WC1N 3JZ, England
- *The Journal of Documentation* (quarterly)
- *ASLIB Proceedings* (monthly)
- *ASLIB Information* (monthly)
- *ASLIB Book List* (monthly)
- *Program* (quarterly)
- *Netlink* (6 year)
- *Online Notes* (monthly)
- *Current Awareness Bulletin* (monthly)

Library Association
7 Ridgemount Street, London WC1E 7AE, England
- *Journal of Librarianship* (quarterly).

France

Association des Bibliotecaires Français
65 Rue de Richelieu, 75002 Paris, France
- *ABF Bulletin d'informations* (quarterly)

Association Française des Documentalistes et Bibliothecaires Specialises
5 Avenue Franco-Russe, 75007 Paris, France
- *Documentaliste, sciences de l'information* (6 year)

India

Indian Association of Special Library and Information Centres
P. 291 CIT Scheme No. 6M, Kankurgachi, Calcutta 700054, India
- *IASLIC Bulletin*

Indian Library Association
A 40-41 Flat 201, Ansal Building, Dr Mukherjee Nagar, Delhi 110009, India
- *Bulletin .....* (quarterly)

Latin America

Associación Interamericana de Bibliotecarios y Documentalistas Agricolas, C.P. 7170, Turrialba, Costa Rica

United States of America

American Library Association, 50 East Huron Street, Chicago, Illinois IL 60611, U.S.A.
- *American Libraries* (monthly)
- *Booklist* (fortnightly)
- *Choice* (monthly)
- *Information Technology and Library* (quarterly)
- *College and Research Library* (6 year)
- *Library Resources and Technical Services* (quarterly)
- *Library Technology Report* (6 year)

Association for Library and Information Science Education
Janet C. Phillips, 471 Park Lane, State College, Pennsylvania PA 16803, U.S.A.
- *Journal of Education for Library and Information Service* (5 year)

Association of Research Libraries, ARL
1527 New Hampshire Avenue North West, Washington DC 20036, U.S.A.
- *ARL Newsletter*

Inter-American Bibliographical and Library Association
P.O. Box 600583, North Miami Beach, Florida FL 33160, U.S.A.
- *Doors to Latin America* (quarterly)

Special Library Association
1700 18th Street North West, Washington DC 20009, U.S.A.
- *Special Libraries* (quarterly)
- *Special List* (monthly)

Appendix 11
Example of a Form Letter for Establishing an Exchange Agreement

EXCHANGE OF PUBLICATIONS
Proposal Form

From: ..... To: .....

....

....

No: Date:

Dear Sir or Madam,

We would like to start an exchange of publications with your institution. We can offer one or more of the following series or journals, copies of which are enclosed:

.....

.....

.....

We would be pleased to receive from you the following series or journals on an exchange basis:

.....

.....

.....

If you have other publications available, please inform us and, if possible, send a specimen copy.

A copy of this proposal form and two reply forms are enclosed for your convenience.

Yours sincerely,

EXCHANGE OF PUBLICATIONS
Reply Form

From: ..... To: .....

....

....

No: Date:

Dear Sir or Madam

We acknowledge receipt of your proposal (No.: ..... Date: .....) for an exchange of publications.

We are willing to accept your proposal.*
We are unable to accept your proposal.*
(* Please delete what is not applicable.)

Starting from ..... (date), we shall forward the following series or journals to your address:

.....

.....

.....

In return, we shall be pleased to receive the following series or journals:

.....

.....

.....

On an exchange basis, we can also offer you the following series, a specimen copy of which is enclosed:

.....

Please inform us which series you could supply on the same basis.

Yours sincerely,

Appendix 12
Example of a Cover and a Page of an Accession List

Figure 26 Example of a cover of an Accession List

Geodesie, Kartografie

Ramirez, J.R.
Computer-aided Mapping Systems : The Next Generation. (en)
In: Photogrammetric Engineering and Remote Sensing 67(1991)1 pp.85-88.
[NIWARS T 771]

Teunissen, P.J.G.
De Geodetische lijn (nl)
In: Geodesia 33(1991)3 pp.110-117
Een bewerking van de inaugaurele rede bij de aanvaarding van het professoraat in de mathematische geodesie en puntsbepaling, aan de Technische Universiteit Delft [STARIN T 39]

Remote Sensing

Mulder, N.J.
Earth Watch: Remote Sensing and Image Analysis (en)
Universiteit Twente, Enschede, Netherlands. 1991. 15 pp. [STARIN 32/433(57)]

Pease, C.B.
Satellite Imaging Instruments: Principles, Technologies, and Operational Systems (en) Ellis Horwood Library of Space Science and Space Technology. Series in Space Technology. Horwood, New York [etc.] United States, 1991.
336 pp. [NIWARS 41/1089]

Rees, W.G.
Physical Principles of Remote Sensing. (en) Topics in Remote Sensing 1. Cambridge University, Cambridge, United Kingdon, 1990. 247 pp.
[NIWARS 41/1087(1)]

Waters, P.A.
Integrating Remote Sensing and Gis: Why it Remotely Makes Sense (en).
In: Mapping Awareness 5(1991)1 pp.48-50 [STARIN T 249]

Remote Sensing applications

Azzali, S.
Calculation of Crop Growth Indicators in Different African Climates Using Remote Sensing and Meteorological Data: Case Studies in Zambia and Somalia (en)
In: INTERNATIONAL SYMPOSIUM REMOTE SENSING AND WATER RESOURCES: PROCEEDINGS; IAH [etc.], [S.l] 1990. pp.375-381 [NIWARS 41/1082]

Figure 27 Example of a page of an Accession List

Appendix 13
Example of a Computer Configuration for a Small Library

COMPUTER	Olivetti M240
Video display	12″ monochrome met OGC video controller Resolution 640 hfl. 400 pixels
Key board	101/102 keys
Basic module	
Drives	A – drive 360 Kb, 5.25″ type B – drive 720 Kb, 3.5″ type C – drive 20 Mb, integrated hard disc 3.5″ (85 Msec)
CPU	8086 processor 10 Mhz
ROM	32 Kb
RAM.M.	640 Kb
Interfaces	Parallel (centronics) Serial (RS – 232 – C)
Expansion slot	7 × 8 bits connector's PC XT bus compatible
PRINTER	Olivetti DM 280 dot matrix printer
Printing technique	Impact dot matrix
Printing speed	160 char/s draft mode 35 char/s Nearly Letter Quality mode
Print pitch	10 char/in. draft mode (80 char max) 17.14 char/in draft mode (132 char max)
Interface	Parallel
MODEM	Hayes compatible 'AT' command set compatible with SMARTCOM II, CROSSTALK XVI, BITCOM, PC TALK III. Operates online in full or half duplex at a rate of 1200 or 300 bps. Built in one of the slots of the M240.
COMPACT DISC	CM 121 CD ROM and audio drive Laser Magnetic Storage International 4425 Arrows West Drive Colorado Springs, Colorado CO 80907-3489, U.S.A. CM 121 provides random access to data and audio stored on compact disc ROM and/or CD audio media. The 12 cm dises have a capacity of 600 MB. CD ROM format Philips/Sony standard.
CONTROLLER CARD	Philips CM 153 CD ROM controller card also from Laser Magnetic Storage International.

To operate the AGRICOLA CD ROM disc on the microcomputer, install Silver Platter information system Release 1.6 and MSCDEX (MSDOS CD ROM extension).

SOFTWARE	Cardbox Version 3.5. from: Business Simulation, Scriventon House, Speldhurst, Kent TN3 0TU England Relay concurrent PC Communication Software Version 2.4. from: V.M. Personal Computing, Danbury, Connecticut CT 06810 9990, U.S.A.
UPS	EP 300. U.S.A. Office, Asiatek, 15112 Berendo Av., Gardena, California CA 90247, U.S.A. For stabilizing electric current.

Appendix 14
Agricultural Databases

The following information has been taken from *Online Databases in the Medical and Life Sciences*, which is published by Cuadra Elsevier. Some of the databases are only available on computer tape; others have a hard-copy issue, either on paper or on compact disc.

AGRICOLA

Producer:	U.S. Department of Agriculture USDA, National Agricultural Library NAL.
Contents:	Citations to the literature acquired by the NAL for use by the USDA.
Subjects covered:	Agricultural economics and rural sociology; agricultural production; animal sciences; chemistry and engineering; entomology; food and human nutrition; forestry; natural resources; pesticides; plant science; soils and fertilizers; water resources. Also covered are related fields such as land use, family migration, labour and political movements, and the impact of chemicals on living organisms.
Other products:	*Bibliography of Agriculture*.
Language:	English.
Time span:	1970 to date.
Updating:	About 12,000 records a month.

AGRIS (International Information System for the Agricultural Sciences and Technology)

Producer:	FAO.
Contents:	Approximately 1 million citations, some with abstracts, to the worldwide literature on agriculture.
Subjects covered:	History and geography; legislation; education, extension and advisory work; economics, development, marketing, and rural sociology; plant production; protection of plants and stored products; forestry; animal production; veterinary medicine; aquatic sciences and fisheries; machinery and buildings; natural resources; food science; human nutrition; home economics; pollution.
Other products:	*Agrindex*.
Language:	English.
Time span:	1975 to date.
Updating:	About 10,000 records a month.

AGRITROP: TROPICAL AND SUBTROPICAL: ANALYTICAL BULLETIN
(Not accessible online. Only available as a journal.)

Producer:	Centre de Cooperation Internationale en Recherche Agronomique pour le Developpement CIRAD.
Contents:	Citations with abstracts to the worldwide literature on tropical and subtropical agriculture.
Subjects covered:	Agricultural economics and development; plant science and production; plant protection; post-harvest technology; forestry; animal science; fisheries; agricultural machinery and engineering; processing of agricultural products; cereals; sugar plants; oil plants; fibre plants; fruits; vegetables; pastures; seed crops; stimulant plants; various other plants.
Language:	English, French, and Spanish editions.
Time span:	1976 to date.
Updating:	500 records each half year.

BIOSIS PREVIEWS

Producer:	BioSciences Information Services (BIOSIS, 2100 Arch Street, Dept. P., Philadelphia, PA 19103-1399, U.S.A.).
Contents:	Approximately 4.7 million citations, with abstracts, to the worldwide literature on research in the life sciences.
Subjects covered:	Microbiology; plant and animal sciences; experimental medicine; agriculture; pharmacology; ecology; biochemistry; bio-engineering; biophysics. Approximately 9,000 journals and other publications are screened.
Other products:	*Biological Abstracts*.
Language:	English.
Time span:	1969 to date.
Updating:	About 19,500 records a month.

CAB ABSTRACTS

Producer:	Commonwealth Agricultural Bureaux International CABI.
Contents:	Approximately 2 million citations, with abstracts, to the worldwide literature on research in agriculture.
Subjects covered:	Animal breeding; engineering; bees; dairy science; crops; forestry; helminthology; horticulture; veterinary medicine; plant breeding; protozoology; applied entomology; mycology; plant pathology; rural development and sociology; soils and fertilizers; weeds; agricultural economics; leisure and recreation; tourism; human and animal nutrition; arid lands.

Other products: 27 main journals and 20 specialized journals, of which the following are interesting for agricultural scientists:

Crop Science and Production:

- *Agroforestry Abstracts;*
- *Chickpeas and Pigeonpeas Abstracts;*
- *Crop Physiology Abstracts;*
- *Faba Bean Abstracts;*
- *Field Crop Abstracts;*
- *Groundnuts Abstracts;*
- *Herbage Abstracts;*
- *Horticultural Abstracts;*
- *Irrigation and Drainage Abstracts;*
- *Maize Abstracts;*
- *Ornamental Horticulture;*
- *Plant Breeding Abstracts;*
- *Plant Growth Regulator Abstracts;*
- *Potato Abstracts;*
- *Rice Abstracts;*
- *Seed Abstracts;*
- *Soils and Fertilizers;*
- *Sorghum and Millet Abstracts;*
- *Soya Bean Abstracts;*
- *Tropical Oil Seed Abstracts;*
- *Wheat, Barley, and Triticale Abstracts.*

Crop protection:

- *Review of Agricultural Entomology;*
- *Biocontrol News and Information;*
- *Helmintological Abstracts – Series B;*
- *Nematological Abstracts;*
- *Plant Nematology;*
- *Review of Plant Pathology;*
- *Weed Abstracts.*

Economics, Development, and Sociology:

- *Rural Development Abstracts;*
- *World Agricultural Economics and Rural Sociology Abstracts.*

Machinery and Buildings:

- *Agricultural Engineering Abstracts.*

Food and Nutrition:

- *Food Science and Technology Abstracts;*
- *Nutrition Abstracts and Reviews.* (Invoicing and distribution of this title is done by the publishers: International Food Information Service IFIS, Lane End House, Shinfield, Reading RG2 9B, U.K.)

PASCAL: AGROLINE

Producer:	Centre National de la Recherche Scientifique/Centre de Documentation Scientifique et Technique/CNRS/CDST; Institut National de la Recherche Agronomique/INRA.
Contents:	Approximately 95,000 citations, with abstracts, to the worldwide literature on agriculture.
Subjects covered:	Agricultural bioclimatology; genetics and plant breeding; general agronomy; phytopathology; plant physiology; plant yield; plant protection; soils; weeds.
Other products:	*Pascal: Thema 280: Sciences Agronomiques, Production Vegetales.*
Language:	French.
Time span:	1980 to date.
Updating:	About 1,800 records a month.

TROPAG

Producer:	Royal Institute of the Tropics, The Netherlands.
Contents:	Citations, with abstracts, to the worldwide literature on practical aspects of tropical and subtropical agriculture.
Subjects covered:	Crop production and protection; crop processing and storage; fertilizers and soils. Also covered are the social and cultural aspects of agricultural development; farming systems; environmental aspects.
Other products:	*Abstracts on Tropical Agriculture/ATA.*
Language:	English.
Time span:	1975 to date.
Updating:	About 1,000 records a quarter.

Appendix 15
Example of a Leaflet about a Library

Figure 28 Example of a leaflet about a library

Appendix 16
Two Examples of Ground Plans for a Library

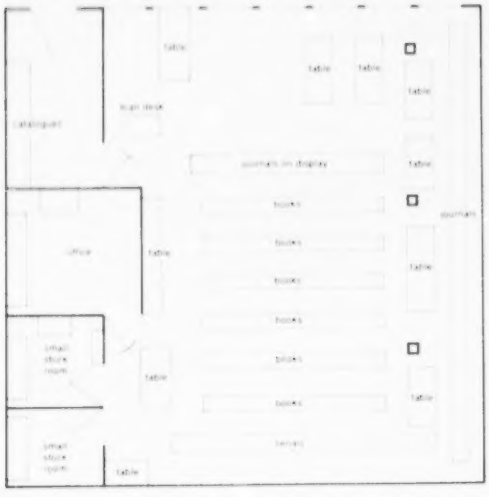


Figure 29 Ground plan of the Library of the Faculty of Agronomy and Forest Engineering of the Eduardo Mondlane University

Figure 30 Ground plan for the new Library of the Faculty of Agronomy and Forest Engineering of the Eduardo Mondlane University

Appendix 17
Library Regulations

1 Organization

1.1 The Library is presided over by a Library Board consisting of:
The Dean or his substitute as Chairman;
The Librarian as Secretary;
Member(s) of the staff.

2 Opening times

Monday to Friday:	07.30-12.00	14.00-17.00.
Saturday:	07.30-12.00.	

3 Rules

3.1 Bags and the like are not allowed in the Library.

3.2 Silence should be observed.

3.3 Smoking, eating, drinking are not allowed.

4 Acquisitions

4.1 All users may suggest acquisitions to the Librarian, who decides on the matter. If no agreement can be reached, the Library Board will decide.

4.2 Each staff member will provide the Library with three copies of any publication written by him. Two copies will be placed in the collection. One will be sent to a documentation and information service for inclusion in a reference or abstract journal and or database.

4.3 Any publication received by a staff member should be offered to the Library to be catalogued. Afterwards, it may be borrowed by the staff member permanently.

4.4 If any new research activities are to be initiated, the Librarian should be informed.

5 Loans

5.1 Staff members and students may borrow publications from the Library. All other persons may only consult them.

5.2 Reference books, other regularly consulted books (to be decided by the Librarian), and journals may not be borrowed.

5.3 The loan period is 14 days. Exceptions can be made.

5.4 A maximum of four books may be borrowed at one time. Exceptions can be made.

5.5 It is forbidden to write or underline in the publications.

5.6 Borrowed or consulted books may not be reshelved by the users. This is the responsibility of trained library personnel.

5.7 Each borrower signing the loan slip is responsible for the book lent to him. In case of loss or damage, he must repay its cost, with administration charges added.

5.8 Inter-library loan is possible, but only for staff members and students, and only after it has been checked that the publication is not available in the Library itself.

6 Services

6.1 The Library management will produce accession lists, pages of contents, current awareness bulletins, etc.

6.2 Each semester, the Library management will organize an instruction session on how to make optimum use of the Library's facilities.

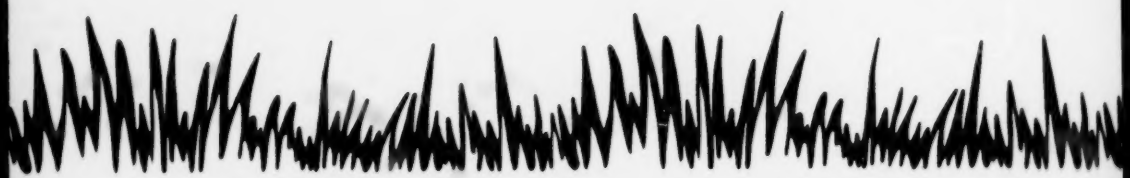
6.3 The Library management will provide each new staff member with a leaflet about the Library, a booklet on how to use the Library, and prepared forms for question-and-answer services.

Agricultural researchers, especially in developing countries, face a formidable task in keeping track of all the new research findings. If they have access to a well-organized library, however, it can help to channel the great flow of information and make it available to them. Anyone wishing to start (or to rehabilitate) such a library will be helped by this book, even if he has no prior training in library science.

The book contains six chapters:

Chapter 1: Collection Building;
Chapter 2: Ways of Overcoming a Shortage of Funds;
Chapter 3: Library Personnel;
Chapter 4: Library Management;
Chapter 5: Agricultural Information Sources;
Chapter 6: Library Instruction and Public Relations.

The book includes seventeen appendices containing lists of agricultural journals, journals on library science, reference books, addresses of international research organizations, and addresses of publishers and booksellers. Others present an example of a form letter for exchange agreements, the cover and page of an accession list, a computer configuration, a leaflet about the library, possible ground plans for libraries, and library regulations.



International Institute for Land Reclamation and Improvement/ILRI
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